INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

TOWN CENTRE RESIDENTIAL

LAKE FOREST, CALIFORNIA

SITE DEVELOPMENT PERMIT 2-12-2396
General Plan amendment 2-12-2395
Zone Change 2-12-2394
Tentative Tract Map 17446

Prepared by:

City of Lake Forest
Development Services Department
25550 Commercentre Drive, Suite 100
Lake Forest, California 92630

October 2012

This page intentionally left blank

TABLE OF CONTENTS

APPENDICES

G: NOISE REPORT
H: WILL SERVE LETTERS
I: TRAFFIC REPORT

FIGURES

TABLES

This page intentionally left blank

1.0 INTRODUCTION

In accordance with the California Environmental Quality Act (CEQA) and its Guidelines, this Initial Study (IS) has been prepared as documentation for a Mitigated Negative Declaration (MND) for the proposed Town Centre Residential Project (project) at 71 Auto Center Drive within the Foothill Ranch Specific Plan in the City of Lake Forest (City). Consistent with *State CEQA Guidelines* Section 15071, this IS/MND includes a description of the project, an evaluation of the potential environmental impacts of the project, and findings from the environmental review.

This IS/MND evaluates the potential environmental impacts that may result from development of the proposed project. The City is the Lead Agency under CEQA, and its governing board is responsible for adoption of the IS/MND and approval of the project.

1.1 CONTACT PERSON

Any questions regarding the preparation of this IS/MND, its assumptions, or conclusions should be referred to:

Jennifer Lilley, AICP
City of Lake Forest
Development Services Department
25550 Commercentre Drive, Suite 100
Lake Forest, California 92630
(949) 282-5226
(949) 461-3511 (fax)
jlilley@lakeforestca.gov

This page intentionally left blank

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND SITE DESCRIPTION

The proposed Town Centre Residential Project (project) site is located at 71 Auto Center Drive within the City of Lake Forest (City) in Orange County, California. The project site is located north of the Foothill Transportation Corridor (State Route 241 [SR-241]) and is bounded by Portola Parkway to the north, Bake Parkway to the west, Auto Center Drive to the east, and commercial uses to the south. Commercial retail centers are located to the west of the project site (including the Foothill Ranch Towne Centre on the opposite side of Bake Parkway), a Mercedes-Benz auto dealership is to the east, and light industrial/office uses are north of Portola Parkway and along the south side of Towne Centre Drive including several medical office buildings. A former auto dealership is also located to the east and is proposed for residential development. Figure 2.1 shows the proposed project location. Surrounding land uses are illustrated in Figure 2.2.

Regional access to the site is provided by SR-241, which is immediately south of the project site, and Interstate 5 (I-5) located approximately 5 miles (mi) south of the project site.

The northern portion of the 8.97-acre (ac) project site is developed with a former auto dealership (Buick/Pontiac/GMC), and the southern portion of the site is vacant and undeveloped. The project site Assessor's Parcel Numbers [APNs] are Nos. 612-161-12 and 612-161-11. The site is currently zoned Commercial within the Foothill Ranch Planned Community (PC-8) and designated as Commercial in the City's General Plan.

2.2 PROJECT CHARACTERISTICS

The proposed project includes construction of a residential community containing 11 two-story motorcourt-style buildings with 151 attached single-family units, comprising approximately 204,106 square feet (sf) of residential uses; refer to Figure 2.3 for an illustration of the proposed project site plan. The proposed project design is characterized by Spanish and early California-style architecture; refer to Figure 2.4 for an illustration of the proposed building design. The proposed project consists of 21 one-bedroom units, 65 two-bedroom units, and 65 three-bedroom units. Of these, a total of 46 units would be designed to be handicapped accessible. Table 2.A provides a breakdown of floor plans and estimated square footage for the proposed project.

The proposed project also includes construction of an 8,500 sf recreation and community area centrally located on the project site. The recreation and community area provides a range of facilities and activity areas to serve the diverse needs of the community's residents. The proposed project would also include cabanas as shade structures and semi-enclosed outdoor rooms.

This page intentionally left blank

LSA

LEGEND

Project Location

FIGURE 2.1

N

0 150 300

FEET

SOURCE: Bing Maps (c.2008)

I:\CLF1201\GIS\ProjectLocation_aerial.mxd (9/4/2012)

Towne Centre Residential

Project Location

This page intentionally left blank

LSA

LEGEND

Project Location

Land Use

FIGURE 2.2

N

0 150 300

FEET

SOURCE: Bing Maps (c.2008); SCAG (2010)

I:\CLF1201\GIS\SurroundingLandUse.mxd (9/4/2012)

Towne Centre Residential

Surrounding Land Uses

This page intentionally left blank

LSA

FIGURE 2.3

N

0 100 200

FEET

SOURCE: Bassenian/Lagoni

I:\CLF1201\G\Site Plan.cdr (7/19/12)

Towne Centre Residential

Site Plan

This page intentionally left blank

LSA

FIGURE 2.4

Towne Centre Residential
Building Design

SOURCE: Bassenian/Lagoni
I:\CLF1201\G\Building Design.cdr (7/19/12)

This page intentionally left blank

Table 2.A: Floor Plans and Square Footage

Floor Plan	No. of Homes	Beds/Baths	Estimated Square Footage
1	21	1/1.5	763
2	22	2/2	1,081
3	21	2/2	1,256
3X	22	2/2	1,287
4	21	3/2	1,577
5	22	3/2.5	1,730
6	22	3/2	1,747

Table 2.B provides a breakdown of the 8.97 ac site by land cover/use.

Table 2.B: Land Cover/Use for the Proposed Project

Land Cover/Use	Area (acres)	Area (percentage)
Building	3.22	35.9
Landscape/Open Space	3.22	35.9
Recreation Center	3.12	34.8
Park	0.34	3.8
Paseos	0.32	3.6
Bake and Portola Landscape Buffers	0.51	5.7
Pedestrian Connection Walkway	0.90	10.0
Paving	1.05	11.7
Total	**8.97**	**100**

2.3 SITE DESIGN

2.3.1 Lighting

The proposed project would include on-site lighting consisting of building lighting (approximately 9 feet [ft] in height), bollards (approximately 3 ft in height), walkway lighting (less than 3 ft in height), and landscape lighting. All lighting would be hooded or shielded to focus the light downward and to prevent light spillage onto adjacent properties.

2.3.2 Landscaping

Figure 2.5 depicts the conceptual landscape plan for the project. The proposed project would include a variety of trees including Chinese flame tree, California sycamore, tulip tree, Brisbane box, Mexican fan palm, strawberry tree, redbud tree, citrus, crape myrtle, Australian willow, and maidenhair trees. Trees would be planted along the perimeter of the project site, as well as in the

This page intentionally left blank

PLANTING LEGEND

PROPOSED PRIMARY ENTRY TREES:

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	W.U.C.O.L.S. III
	KOELREUTERIA BIPINNATA	CHINESE FLAME TREE	24" BOX	MEDIUM
	PLATANUS RACEMOSA	CALIFORNIA SYCAMORE	24" BOX	MEDIUM
	LIRIODENDRON TULIPIFERA	TULIP TREE	24" BOX	MEDIUM
	TRISTANIA CONFERTA	BRISBANE BOX	24" BOX	MEDIUM
	WASHINGTONIA ROBUSTA	MEXICAN FAN PALM	RELOCATED	LOW

PROPOSED SECONDARY ENTRY TREES:

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	W.U.C.O.L.S. III
	KOELREUTERIA BIPINNATA	CHINESE FLAME TREE	24" BOX	MEDIUM
	PLATANUS RACEMOSA	CALIFORNIA SYCAMORE	24" BOX	MEDIUM
	LIRIODENDRON TULIPIFERA	TULIP TREE	24" BOX	MEDIUM
	TRISTANIA CONFERTA	BRISBANE BOX	24" BOX	MEDIUM
	WASHINGTONIA ROBUSTA	MEXICAN FAN PALM	RELOCATED	LOW

PROPOSED PASEO TREES:

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	W.U.C.O.L.S. III
	ARBUTUS UNEDO (CULTIVARS)	STRAWBERRY TREE	24" BOX	LOW
	CERCIS SPECIES	REDBUD TREE	24" BOX	MEDIUM
	CITRUS SPECIES	CITRUS	24" BOX	HIGH
	LAGERSTROEMIA INDICA (CULTIVARS)	CRAPE MYRTLE	24" BOX	MEDIUM

PROPOSED INTERIOR STREET TREES:

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	W.U.C.O.L.S. III
	GELSEIRA PARVIFLORA	AUSTRALIAN WILLOW	24" BOX	MEDIUM
	GINKGO BILOBA (CULTIVARS)	MAIDENHAIR TREE	24" BOX	MEDIUM
	KOELREUTERIA BIPINNATA	CHINESE FLAME TREE	24" BOX	MEDIUM
	KOELREUTERIA PANICULATA	GOLDEN RAIN TREE	24" BOX	MEDIUM
	PLATANUS ACERFOLIA (CULTIVARS)	LONDON SYCAMORE	24" BOX	MEDIUM
	TRISTANIA CONFERTA	BRISBANE BOX	24" BOX	MEDIUM

PROPOSED EDGE TREES ALONG PORTOLA AVE & BAKE PARKWAY LOCATED BEHIND EXISTING TREE ROWS:

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	W.U.C.O.L.S. III
	ARBUTUS (CULTIVARS)	STRAWBERRY TREE	24" BOX	LOW
	CERCIS SPECIES	REDBUD TREE	24" BOX	MEDIUM
	LAGERSTROEMIA INDICA (CULTIVARS)	CRAPE MYRTLE	24" BOX	MEDIUM
	MAGNOLIA SPECIES	MAGNOLIA	24" BOX	MEDIUM

PROPOSED MOTOR COURT TREES:

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	W.U.C.O.L.S. III
	DODONEA VISCOSA (CULTIVARS)	HOPSEED BUSH	15 GAL.	MEDIUM
	LIGUSTRUM JAPONICA	TEXAS PRIVET	15 GAL.	MEDIUM
	PODOCARPUS (SPECIES)	SHRUBBY YEW PINE	15 GAL.	MEDIUM
	STRELITZIA NICOLAI	GIANT BIRD OF PARADISE	15 GAL.	MEDIUM

PROPOSED AUTO CENTER DRIVE TREES:

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	W.U.C.O.L.S. III
	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	MAGNOLIA	24" BOX	HIGH
	WASHINGTONIA ROBUSTA	MEXICAN FAN PALM	RELOCATED	LOW

PROPOSED SHRUBS AND GRASSES:

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	W.U.C.O.L.S. III
	ABELIA GRANDIFLORA (CULTIVARS)	GLOSSY ABELIA	5 GAL.	MEDIUM
	ABUTILON (VARIETIES)	EVERGREEN MAPLE	15 GAL.	MEDIUM
	AGAPANTHUS AFRICANUS (CULTIVARS)	LILY-OF-THE-NILE	5 GAL.	MEDIUM
	AGAVE ATTENUATA (CULTIVARS)	FOXTAIL AGAVE	15 GAL.	LOW
	CAREX TUMULICOLA	BERKLEY SEDGE	5 GAL.	MEDIUM
	CARPENTERIA CALIFORNICA	BUSH ANEMONE	5 GAL.	LOW
	CISTUS x PURPUREUS	ORCHID ROCKYROSE	5 GAL.	MEDIUM
	DIETES BICOLOR	AFRICAN IRIS	5 GAL.	MEDIUM
	DIETES VEGATA	FORTNIGHT LILY	5 GAL.	MEDIUM
	DODONEA VISCOSA (CULTIVARS)	HOPSEED BUSH	15 GAL.	MEDIUM
	ESCALLONIA (CULTIVARS)	ESCALLONIA	5 GAL.	MEDIUM
	EUONYMUS (CULTIVARS)	EUONYMUS	5 GAL.	LOW
	FEIJOA SELLOWIANA	PINEAPPLE GUAVA	5 GAL.	LOW
	GREVILLEA NOELLII	GREVILLEA	5 GAL.	LOW
	HEMEROCALLIS (CULTIVARS)	HEMEROCALLIS	5 GAL.	MEDIUM
	HETEROMELES ARBUTIFOLIA	TOYON	5 GAL.	VERY LOW
	ILEX SPECIES	HOLLY	5 GAL.	MEDIUM
	KNIPHOFIA (CULTIVARS)	RED HOT POKER	5 GAL.	MEDIUM
	LIGUSTRUM JAPONICA	TEXAS PRIVET	15 GAL.	MEDIUM
	LIRIOPE (VARIETIES)	LILY TURF	1 GAL.	MEDIUM
	MUHLENBERGIA CAPILLARIS	PINK MUHLY	5 GAL.	LOW
	MUHLENBERGIA RIGENS	DEER GRASS	5 GAL.	LOW
	MYRSINE AFRICANA	AFRICAN BOXWOOD	5 GAL.	LOW
	NANDINA DOMESTICA (CULTIVARS)	DWARF HEAVENLY BAMBOO	5 GAL.	LOW
	NASSELLA TENUISSIMA	MEXICAN FEATHER GRASS	5 GAL.	VERY LOW
	PENNISETUM SETACEUM (CULTIVARS)	PURPLE FOUNTAIN GRASS	5 GAL.	MEDIUM
	PHORMIUM TENAX (CULTIVARS)	NEW ZEALAND FLAX	5 GAL.	LOW
	PITTOSPORUM TOBIRA (CULTIVARS)	VARIEGATED TOBIRA	5 GAL.	LOW
	PODOCARPUS (SPECIES)	SHRUBBY YEW PINE	15 GAL.	MEDIUM
	PYRACANTHA (CULTIVARS)	FIRETHORN	5 GAL.	LOW
	RHAPHIOLEPIS INDICA (CULTIVARS)	INDIA HAWTHORN	5 GAL.	LOW
	ROSA (CULTIVARS)	WHITE CARPET ROSE	5 GAL.	MEDIUM
	ROSMARINUS OFFICINALIS (CULTIVARS)	N.C.N.	5 GAL.	LOW
	SALVIA (VARIETIES)	SAGE	5 GAL.	LOW
	STRELITZIA NICOLAI	GIANT BIRD OF PARADISE	15 GAL.	MEDIUM
	STRELITZIA REGINAE	BIRD OF PARADISE	5 GAL.	MEDIUM
	VIBURNUM TINUS (CULTIVARS)	DWARF LAURISTINUS	5 GAL.	MEDIUM

PLANTING LEGEND (CONTINUED)

PROPOSED VINES AND ESPALIERS:

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	W.U.C.O.L.S. III
	CLYTOSTOMA CALLISTEGIOIDES	LAVENDER TRUMPET VINE	5 GAL.	MEDIUM
	DISTICTIS BUCCINATORIA	BLOOD-RED TRUMPET VINE	5 GAL.	MEDIUM
	GELSEMIUM SEMPERVIRENS	CAROLINA JESSAMINE	5 GAL.	LOW
	JASMINUM POLYANTHUM	PINK JASMINE	5 GAL.	MEDIUM
	LONICERA JAPONICA	HALL'S HONEYSUCKLE	5 GAL.	MEDIUM
	MACFADYENA UNGUS-CATI	CATS CLAW	5 GAL.	LOW
	PARTHENOCISSUS TRICUSPIDATA	BOSTON IVY	5 GAL.	MEDIUM
	ROSA BANKSIAE	LADY BANK'S ROSE	5 GAL.	LOW
	WISTERIA SINENSIS	CHINESE WISTERIA	5 GAL.	MEDIUM

PROPOSED GROUNDCOVERS:

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	W.U.C.O.L.S. III
	ACACIA REDOLENS 'LOW BOY'	PROSTRATE ACACIA	1 GAL.	VERY LOW
	ARCTOSTAPHYLOS (VARIETIES)	MANZANITA	1 GAL.	LOW
	BACCHARIS PILULARIS 'TWIN PEAKS'	COYOTE BRUSH	1 GAL.	LOW
	COTONEASTER DAMMERI	BEARBERRY COTONEASTER	1 GAL.	MEDIUM
	FESTUCA ARUNDINACEA 'MARATHON II'	DWARF TALL FESCUE TURF	SODDED	HIGH
	GAZANIA 'SUNBURST'	GAZANIA	1 GAL.	MEDIUM
	LANTANA MONTEVIDENSIS	TRAILING LANTANA	1 GAL.	LOW
	LONICERA JAPONICA	HALL'S HONEYSUCKLE	5 GAL.	MEDIUM
	ROSA 'FLOWER CARPET'	FLOWER CARPET ROSE	1 GAL.	MEDIUM
	ROSMARINUS OFFICINALIS 'PROSTRATUS'	TRAILING ROSEMARY	1 GAL.	LOW
	TRACHELOSPERMUM ASIATICUM	ASIAN JASMINE	1 GAL.	MEDIUM
	ANNUAL COLOR	TO BE SELECTED BY L.A.	1 GAL.	VARIES

LANDSCAPE & IRRIGATION NOTES:

LANDSCAPE:
1. ALL LANDSCAPE SHALL BE DESIGNED, DOCUMENTED, INSTALLED AND MAINTAINED IN CONFORMANCE TO THE GUIDELINES FOR IMPLEMENTATION OF THE CITY OF LAKE FOREST WATER EFFICIENT LANDSCAPE REGULATION, ORDINANCE NO. 207
2. ALL TREES WITHIN 5' OF HARDSCAPE AREA SHALL RECEIVE ROOT BARRIERS.
3. ALL PLANTER AREAS SHALL RECEIVE A 3" LAYER OF TOP MULCH.

LSA

FIGURE 2.5

N

0 65 130

FEET

SOURCE: Urban Arena

I:\CLF1201\G\Landscape Plan.cdr (7/19/12)

Towne Centre Residential

Conceptual Landscape Design

This page intentionally left blank

interior between buildings and along the pedestrian and vehicle access routes. The proposed project would also include shrubs and areas of grasses and turf on site.

The proposed project also includes drought-tolerant landscaping to reduce the need for irrigation and runoff during the dry season. Examples of drought-tolerant plantings proposed include trees such as Mexican fan palms and strawberry trees, and shrubs and grasses such as toyon, sage, and Mexican feather grass. The irrigation system for the landscaping would consist of low-volume spray heads or bubblers connected to an automatic irrigation control system. The irrigation system would comply with the City's Water-Efficient Landscape Ordinance. No reclaimed water would be utilized on site.

2.3.3 Vehicular and Pedestrian Access

Major roadways that serve the project site are Portola Parkway, Bake Parkway, and Lake Forest Drive via Auto Center Drive and Towne Center Drive (refer to Figure 2.1). Below is a description of each of these roadways:

- Portola Parkway: five- to six-lane major arterial located north of the project site;
- Bake Parkway: four-lane primary arterial located west of the project site;
- Lake Forest Drive: four-lane primary arterial located east of the project site;
- Auto Center Drive: two-lane local collector located east of the project site; and
- Towne Center Drive: four-lane secondary arterial located south of the project site.

SR-241 can be accessed by the project site via Lake Forest Drive and Alton Parkway southeast and southwest of the project site, respectively, approximately 0.5 mile to 1.0 mile from the project site. The project's regional destinations are also served by I-5, which is approximately 5 miles southwest of the project site via Bake Parkway and Lake Forest Drive.

Signalized intersections are provided at the following locations: (1) Bake Parkway at Portola Parkway; (2) Auto Center Drive/Portola Parkway; (3) Lake Forest Drive/Portola Parkway; (4) Bake Parkway/Towne Centre Drive; (5) Lake Forest Drive at Towne Centre Drive; (6) Lake Forest Drive at SR-241 Northbound On-Ramp; (7) Lake Forest Drive at SR-241 Southbound Off-Ramp; (8) Bake Parkway/Rancho Parkway North; and (9) Lake Forest Drive/Rancho Parkway. Unsignalized intersections are provided at the following locations: (1) Auto Center Drive (West) at Towne Centre Drive and (2) Auto Center Drive (East) at Towne Centre Drive.

Vehicular access to the project site would be provided from Auto Center Drive via two gated entry/ exit points. The primary access is just south of Portola Parkway, and the secondary access is on the south end of the project site near Towne Centre Drive. The secondary access is restricted to residents only for entry but would allow guests to exit via automatic sensors. The entries would be connected to each other via a private drive flanked by landscaping, walkways, and guest parking spaces.

Pedestrian access to the site would be from sidewalks along Auto Center Drive and the corner plaza at Bake Parkway and Portola Parkway. On-site pedestrian access would be facilitated by a designated pedestrian walkway linking the public sidewalk to a system of connected walkways in front of each

unit and all areas within the project site, including a centrally-located 8,500 sf recreation and community area.

Pedestrian access from the site to adjacent retail/commercial areas would be accessed via the public sidewalks along Auto Center Drive, as well as Bake Parkway. There are two main retail/commercial areas, one directly south of and adjacent to the project site that would not require a pedestrian to cross any major roadways, and a second west of the project site that would require pedestrians to cross Bake Parkway (a four-lane primary arterial) at the signalized intersection of Bake Parkway and Portola Parkway. Refer to Figure 2.2 for the location of these retail/commercial areas south and west of the project site.

2.3.4 Police and Fire Access

The proposed project would provide adequate emergency access via the private road that can be accessed in two locations along Auto Center Drive. As discussed above, the primary access point is just south of Portola Parkway, and the secondary access is on the south end of the project site near Towne Centre Drive. Also, in addition to the existing fire hydrant on the corner of Portola Parkway and Auto Center Drive, the proposed project includes four fire hydrants along the private road, as well as sufficient space and turning radius for fire trucks. The two gated entries would also be equipped with automatic entry for the police and fire departments during emergencies.

2.3.5 Parking

The proposed project would include on-site parking for residents and guests. One-bedroom units would have one attached garage space for a total of 21 proposed parking spaces. Each two- and three-bedroom unit would have two attached garage spaces, directly accessible from motorcourts behind the units, which would result in a total of 260 parking spaces. Sixty-five of the garages (i.e., 130 parking spaces) will be provided as tandem garages. An additional 76 parking spaces would be provided by on-site guest and uncovered resident parking. A total of 357 on-site parking spaces would be provided. The minimum parking requirement is 355 on-site parking spaces.

2.3.6 Signage

The proposed project would include community identification monument signs with a maximum height of 5 ft at each of the two project entries, as well as directional signage on site, and address signage on the buildings.

2.3.7 Water Quality Best Management Practices

Source Control, Site Design, and Low Impact Development (LID) Best Management Practices (BMPs) would be implemented for the proposed project. Figure 2.6 illustrates the location of these proposed BMPs. The following is a discussion of each type of BMP:

LSA

FIGURE 2.6

N

0 65 130

FEET

SOURCE: Fuscoe Engineering

Towne Centre Residential

Proposed BMP Locations

I:\CLF1201\G\BMP Locations.cdr (7/10/12)

This page intentionally left blank

- Proposed structural Source Control BMPs include storm drain stenciling and signage; efficient irrigation systems and landscape design, water conservation, smart controllers; and protection of slopes and channels.
- Proposed Site Design BMPs include minimizing impervious area and disconnecting impervious areas by providing landscaping throughout the site and around the perimeter of the building, preserving existing drainage patterns and time of concentration, revegetating disturbed areas, and xeroscape landscaping through use of native and/or drought tolerant landscaping.
- Proposed LID BMPs include hydraulic source controls (impervious area dispersion) throughout the site with disconnected downspouts and sidewalks draining to adjacent landscaping.
- Proprietary biotreatment units (Filterra® or equivalent) would also be installed throughout the project site. Two rain gardens (bioretention cells) would be located in the northeast portion of the project site to capture and treat a portion of runoff prior to discharging into the proprietary biotreatment units. Proposed non-structural Source Control BMPs include education for property owners, tenants, and occupants, activity restrictions, common area landscape management, and BMP maintenance.

2.3.8 Green Building Features

The Town Centre Residential project has been designed to meet the sustainability goals and requirements of the City and the State including the California Green Building Code, Title 24 energy efficiency requirements, and Assembly Bill (AB) 1881 water efficient landscape requirements. The proposed project would also implement a number of energy and water conservation measures and green building and Low Impact Development (LID) design features. These design features and practices are included below:

- Natural daylight through the use of building orientation and spacing and plenty of windows;
- Energy-efficient lighting and mechanical systems;
- Water-efficient plumbing fixtures;
- Water-efficient landscaping, including the utilization of native plant species in addition to drought-tolerant ornamental species;
- Minimization of impervious surfaces as compared to existing conditions for the developed portion of the site;
- Treatment of water runoff in landscaped areas and biotreatment BMPs;
- Hydrologic source controls to reduce storm water runoff volume; and
- Education of homeowners and maintenance staff regarding proper irrigation and landscaping maintenance to limit water runoff.

2.4 INFRASTRUCTURE IMPROVEMENTS

2.4.1 On-site and Off-site Infrastructure

The project infrastructure components to be implemented would require improvements to, and connection with, existing infrastructure systems. These systems, which consist of water, electricity, natural gas, sanitary sewer, storm water drains, and telecommunications would be constructed on site and would be fully provided and maintained by the property owner. All on-site systems would connect to existing infrastructure in Auto Center Drive and Bake Parkway.

Specifically, the on-site infrastructure improvements would include:

- Installation of two gas connections to the existing gas lines in Auto Center Drive;
- Installation of four fire hydrants along the private road;
- Installation of three new electrical transformers;
- Installation of two 8-inch water lines that would connect to existing 8-inch water lines in Auto Center Drive;
- Installation of an 8-inch sanitary sewer line that would connect to the existing 8-inch sanitary sewer line in Auto Center Drive; and
- Installation of a 30-inch storm drain that would connect to the existing 54-inch storm drain in Bake Parkway.

2.5 IMPLEMENTATION AND PHASING

The build-out schedule for the proposed project would depend on market demand; however, it is anticipated that demolition and grading would require 1 month each, and construction and paving would occur over approximately 12 months. Grading is expected to be balanced, with approximately equal amounts of cut and fill. Groundbreaking is anticipated to occur in spring 2013.

2.6 DISCRETIONARY ACTIONS

Implementation of the proposed project requires the following:

- Amendment to the City of Lake Forest General Plan land use designation from Commercial to Medium Density Residential;
- Amendment to Foothill Ranch Planned Community Plan: (1) change the project site's zoning from *Foothill Ranch Plan: Commercial* to *Foothill Ranch Plan: Multi-family Residential* and (2) increase the number of residential units permitted within the Foothill Ranch Plan;
- Approval of a Vesting Tract Map;
- Approval of a Site Development Permit; and
- Development Agreement.

2.6.1 Other Ministerial City Actions

Ministerial permits/approvals (e.g., grading permits, encroachment permit, curb cut permit, building permit, and lot line adjustment) would be issued by the City to allow site preparation, curb cuts, and connections to the utility infrastructure.

2.6.2 Probable Future Actions by Responsible Agencies

Because the project also involves approvals, permits, or authorization from other agencies, these agencies are "Responsible Agencies" under the California Environmental Quality Act (CEQA). Section 15381 of the *State CEQA Guidelines* defines Responsible Agencies as public agencies other than the Lead Agency that will have discretionary approval power over the project or some component of the project, including mitigation. These agencies include, but are not limited to, the agencies identified in Table 2.C.

Table 2.C: Probable Future Actions by Responsible Agencies

Responsible Agency	Action
State Water Resources Control Board (SWRCB)	Applicant must submit Permit Registration Documents, including a Notice of Intent (NOI), to comply with the National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities

2.7 RELATIONSHIP TO OTHER DOCUMENTS

Pursuant to *State CEQA Guidelines* Section 15150, this Initial Study (IS)/Mitigated Negative Declaration (MND) incorporates by reference all or portions of technical documents that relate to the proposed project or provide additional information concerning the environmental setting in which the project is proposed. The information disclosed in this IS/MND is based in part on the following technical studies and/or planning documents that include the project site or provide information addressing the general project area:

- City of Lake Forest General Plan (May 2011);
- City of Lake Forest Zoning Code (June 2010);
- City of Lake Forest Zoning Map;
- Foothill Ranch Planned Community - Development Plan and Supplemental Text;
- Foothill Ranch Planned Community Environmental Impact Report; and
- City of Lake Forest Master Environmental Impact Report and Mitigation Monitoring Program (June 1994).

This page intentionally left blank

3.0 ENVIRONMENTAL CHECKLIST FORM

1.	Project Title: Town Centre Residential	
2.	Lead Agency Name and Address: City of Lake Forest 25550 Commercentre Drive, Suite 100 Lake Forest, California 92630	
3.	Contact Person and Phone Number: Jennifer Lilley, AICP (949) 282-5226	
4.	Project Location: 71 Auto Center Drive (corner of Bake Parkway and Portola Parkway)	
5.	Project Sponsor's Name and Address: Brookfield 3090 Bristol Street, Suite 200 Costa Mesa, California 92626	
6.	General Plan Designation: Commercial	7. Zoning: Foothill Ranch (Commercial)
8.	Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheet(s) if necessary.) Refer to Chapter 2.0 of this IS/MND.	
9.	Surrounding Land Uses and Setting: (Briefly describe the project's surroundings.) Refer to Chapter 2.0 of this IS/MND.	
10.	Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement): Refer to Chapter 2.0 of this IS/MND.	

This page intentionally left blank

4.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" prior to implementation of mitigation as indicated by the checklist on the following pages.

☒ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☒ Hydrology/Water Quality
☒ Land Use/Planning	☐ Mineral Resources	☒ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☒ Utilities/Service Systems	☒ Mandatory Findings of Significance

4.1 DETERMINATION

(To be completed by the Lead Agency) On the basis of this initial evaluation:

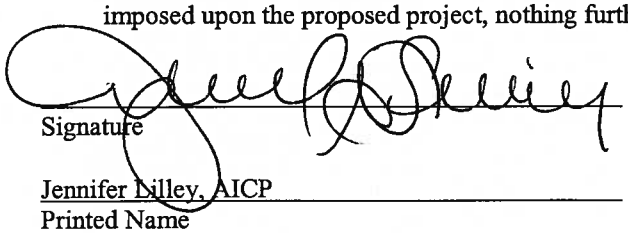
☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION (MND) will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT (EIR) is required.

☐ I find that the proposed project MAY have a "potentially significant" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An EIR is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature _____ Date _____

Jennifer Lilley, AICP
Printed Name _____ For _____

4.2 EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other California Environmental Quality Act (CEQA) process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063(c)(3)(D)). In this case, a brief discussion should identify the following:
    a. Earlier Analyses Used. Identify and state where they are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources. A source list should be attached and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:
    a. The significance criteria or threshold, if any, used to evaluate each question; and
    b. The mitigation measure identified, if any, to reduce the impact to less than significance.

4.3 AESTHETICS *Would the project:*	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
(c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
(d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

Discussion:

(a) **No Impact.** A scenic vista is defined as a viewpoint that provides expansion views of a highly valued landscape for the benefit of the general public. Aesthetic components of a scenic vista generally include (1) scenic quality, (2) sensitivity level, and (3) view access. According to the City of Lake Forest's (City) CEQA Significance Thresholds Guide, the City has not designated any scenic vistas within its jurisdiction. Therefore, there are no scenic vistas in the project area, and no impacts would occur.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

(b) **No Impact.** The California Department of Transportation (Caltrans) Landscape Architecture Program administers the Scenic Highway Program, contained in Streets and Highways Code Sections 260–263. State highways are classified as either Officially Listed or Eligible. State Route 241 (SR-241), located south of the project site, is not identified as an eligible or State-designated Scenic Highway.[1] In addition, according to the City's CEQA Significance Thresholds Guide, the City has not designated any scenic corridors within its jurisdiction. However, within the City, the County of Orange Scenic Highway Plan identifies El Toro Road as a scenic highway. The proposed project site is not located adjacent to El Toro Road. Therefore, the proposed project does not have the potential to damage resources within a State or locally designated scenic roadway, and no mitigation is required. Additionally, there are no scenic rock outcroppings located within the project limits, and while the proposed project may remove existing on-site trees located in the parking lot to be removed and along Bake Parkway, these trees are not considered scenic resources and several existing trees would be replanted on site after completion of construction. Therefore, the proposed project would not damage scenic resources, and no mitigation is required.

[1] California Department of Transportation website: http://www.dot.ca.gov/hq/LandArch/scenic_highways.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

(c) **Less than Significant Impact.** Implementation of the proposed project would result in the construction of 151 single-family units including a private driveway connecting two access points from Auto Center Drive, associated parking areas, and an 8,500-square foot (sf) recreation and community area centrally located on the project site; refer to Figures 2.3for the proposed project site plan. The proposed project is characterized by Spanish and early California-style architecture; refer to Figure 2.4 for the proposed building design. Figure 2.5 depicts the conceptual landscape plan for the project. Also, in compliance with the Foothill Ranch Planned Community Development Standards, the conceptual landscape plan includes landscaping in parking areas, as well as around the perimeter of the proposed project site. Existing landscaping along Bake Parkway and Portola Parkway would not be disturbed by project implementation, and areas fronting Auto Center Drive and Towne Centre Drive would be landscaped.

The Whiting Ranch Wilderness Park is a prominent visual feature in the northern portion of the City, located generally between the planned communities of Portola Hills and Foothill Ranch. The proposed project site is located approximately 1,900 feet (ft) from Whiting Ranch and, presumably, would be visible from some park trails. However, the project site is located in an existing urbanized area and is surrounded by urban development on all four sides. Implementation of the proposed project would not substantially damage or degrade views from Whiting Ranch because it would not interrupt views or substantially change the nature of views in the project vicinity. Therefore, implementation of the proposed project would have a less than significant impact on views from Whiting Ranch.

It is expected that the proposed residential project would be visible to passing motorists on adjacent roadways and while the project site would be more densely developed with the residential motorcourt style buildings compared to existing conditions, the architecture of the proposed project would be comparable to and compatible with the existing architecture in the Foothill Ranch Planned Community. In addition, as mentioned above, the proposed project includes landscaping along the perimeter of the project site to buffer the project site from surrounding commercial area consistent with the Citywide Design Guidelines. In addition, the areas immediately surrounding the project site are of a land use character similar to the proposed project (i.e., urban, built up), so the proposed project would not substantially change the character of larger community or the views currently experienced by off-site viewers. Therefore, with consideration of the design, landscaping, and surrounding urban and built up land uses, visual impacts associated with project implementation would be less than significant, and no mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

(d) Less than Significant Impact with Mitigation Incorporated. Spill light occurs when lighting standards such as streetlights are not properly aimed or shielded to direct light to the desired location and light escapes and partially illuminates a surrounding location. Spill light can be measured in terms of footcandles[1] (fc). Table 4.1.A provides examples of illumination levels from common sources such as daylight. Glare is the result of improperly aimed or blocked lighting sources that are visible against a dark background such as the night sky.

Table 4.1.A: Footcandle Levels from Common Light Sources

Source	Footcandles (fc)
Starlight	0.0002
Moonlight	0.02
Gas Station Pump Area	5
Office Lighting	70–150
Car Sales Areas	100
Professional Sports Arena	100–150
Direct Sunlight	5,000–10,000

Glare may also refer to the sensation experienced looking into an excessively bright light source that causes a reduction in the ability to see or causes discomfort. Glare generally does not result in illumination of off-site locations, but results in a visible source of light viewable from a distance.

The northern portion of the project site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land, and, as such, no lighting currently exists on site. The proposed project would introduce nighttime lighting to the project site. After project implementation, site lighting would consist of low lighting and building lighting (approximately 9 ft in height), bollards (approximately 3 ft in height), walkway lighting (less than 3 ft in height) and landscape lighting. All lighting would be hooded or shielded to focus the light downward and to prevent light spillage onto adjacent properties. The project site would be illuminated from sunset to sunrise (generally 6:00 p.m. to 6:00 a.m., depending on the time of year). Therefore, the proposed project could result in a substantial amount of new nighttime light, and mitigation is required. Mitigation Measures A-1 and A-2 require the project applicant to prepare a comprehensive lighting plan and a photometric survey prior to construction. These measures are intended to minimize impacts of new sources of light and glare to adjacent land uses, limit nighttime lighting to that

[1] A footcandle is a unit of measure of the intensity of light falling on a surface, equal to one lumen per square foot and organelle defined with reference to a standardized candle burning at 1 foot from a given surface. Source: The American Heritage Dictionary of the English Language, Fourth Edition, Houghton Mifflin Company, 2000.

necessary for security, and ensure that lighting is shielded to reduce glare and spill lighting effects. Implementation of these mitigation measures would reduce potential impacts related to new lighting to a less than significant level.

Normally, recreation and open space uses would be considered to be potentially light sensitive; however, nearest recreation use, the Etnies Skate Park of Lake Forest, located southeast of the project site beyond SR-241, is illuminated at night and would not be negatively affected by nighttime lighting on the project site. The Skate Park is open until 9:00 p.m. Sunday through Thursday and until 10:00 p.m. on Friday and Saturday.

Glare generation can occur from sunlight reflected from the glass and reflective materials utilized on existing commercial and office buildings and from vehicle windows and surfaces. Any glare experienced as a result of sunlight reflecting off surrounding office and commercial buildings would be temporary, changing with the movement of the sun throughout the course of the day and the seasons of the year. In addition, glare associated with the proposed project would be less than that generated previously on the project site as a result of the former car dealership. Potential glare impacts would be less than significant.

Significance Determination: Potentially Significant.

Mitigation Measures:

A-1: **Comprehensive Lighting Plan.** Prior to issuance of a precise grading permit for the Towne Centre Residential Project (project), the project applicant shall prepare a comprehensive lighting plan for review and approval by the City of Lake Forest (City) Director of Development Services or designee. The lighting plan shall be prepared by a qualified engineer and shall be in compliance with applicable standards of the City Municipal Code. The lighting plan shall address all aspects of lighting, including but not limited to infrastructure and safety. The lighting plan shall include the following in conjunction with other measures, as determined by the illumination engineer:

a. No direct rays or glare are permitted to shine onto public streets or adjacent sites.
b. Light levels at the property line shall not exceed 0.1 footcandle (fc) adjacent to business properties.
c. Parking area lighting shall be Illuminating Engineering Society “Full Cut Off” designated or “fully shielded” fixtures so that no light is emitted above the lowest light-emitting part of the fixture.
d. Light standards shall not exceed 20 feet (ft) in height.

A-2: **Photometric Survey.** Prior to the issuance of a precise grading permit, a final photometric survey shall be prepared for approval by the City Director of Development Services, or designee. The survey shall demonstrate that lighting values do not exceed 0.1 fc adjacent to business properties and that no direct rays shine onto public streets or adjacent sites.

Significance Determination After Mitigation: Less than Significant.

4.4 AGRICULTURE & FOREST RESOURCES *Would the project:*		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒
(b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
(c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
(d)	Result in the loss of forest land or conversion of forest land to nonforest use?	☐	☐	☐	☒
(e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use?	☐	☐	☐	☒

Discussion:

a) **No Impact.** As shown in Figure 2.2, the project site consists of an irregular piece of land located south of the intersection of Bake Parkway and Portola Parkway in the City of Lake Forest. The northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land. The surrounding area is characterized by commercial and transportation uses. The project site is not used for agricultural production and is not designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. The proposed project would not convert any type of farmland to a nonagricultural use or contribute to environmental changes that could result in conversion of farmland to nonagricultural use. No impacts to agricultural resources would occur, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

b) **No Impact.** The proposed project site is not used for agricultural production, not zoned for agricultural use, and is not protected by, or eligible for, a Williamson Act contract. No impacts to agricultural resources would occur, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

c) **No Impact.** The northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land. The project site is currently zoned for commercial uses and, with project implementation, the zoning would be changed to residential. The project site is not used for timberland production, not zoned as forest land or timberland, and does not contain forest land or timberland. No impacts to agricultural resources would occur, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

d) **No Impact.** The northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land. The site is currently zoned for commercial uses and, with project implementation, the zoning would be changed to residential. The project site is surrounded by urban development. Trees on the project site are found within the parking area of the former car dealership and along the site perimeter. The proposed project would not convert forest land to a nonforest use. Likewise, the proposed project site would not contribute to environmental changes that could result in conversion of forest land to nonforest use. No impacts to forest land or timberland resources would occur, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

e) **No Impact.** The proposed project site is currently zoned for commercial uses, and while the site would be converted to residential uses with project implementation, it is not used for agricultural production or designated or zoned for agricultural uses. The proposed project would not convert farmland to a nonagricultural use. Likewise, the proposed project site would not contribute to environmental changes that would indirectly result in conversion of farmland to nonagricultural use. No impacts to agricultural resources would occur, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

4.5 AIR QUALITY *Would the project:*		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
(b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
(c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
(d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
(e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Impact Analysis:

a) **No Impact.** A project is consistent with the regional Air Quality Management Plan (AQMP) if it does not create new violations of clean air standards, exacerbates any existing violations, or delays a timely attainment of such standards. The previous use of the site as an auto dealership was the land use assumption incorporated into the current AQMP. A conversion to residential use represents a changed circumstance in terms of air quality. The Lake Forest Opportunities Study Program (OSP) EIR identified land use changes that convert industrial or commercial properties to residential as being a significant impact to land use under CEQA. The OSP EIR also noted, however, that impacts to individual disciplines such as air quality, noise, or traffic are mitigable and not necessarily significant. The foregoing analysis demonstrates that air quality impacts are less than significant, even without any "credit" for offsetting existing uses. The change to regional air quality from the proposed action is immeasurably small. The project will thus not impede AQMP implementation and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No mitigation is required.

Significance Determination after Mitigation: No Impact.

b) **Less than Significant Impact.**

Short-Term (Construction) Emissions. Emissions of pollutants would occur during construction of the proposed project from soil disturbance and equipment exhaust. Major sources of emissions during demolition, grading, and site preparation include: (1) exhaust emissions from construction equipment and vehicles; (2) fugitive dust generated by construction vehicles and equipment traveling over exposed surfaces; (3) demolition activities; and (4) soil disturbances from grading and backfilling.

To evaluate potential impacts related to construction activities, specific criteria are used. The criteria include daily emissions thresholds, compliance with State and national air quality standards, and conformity with the existing State Implementation Plan (SIP) or existing air quality attainment plans. Specific criteria for determining whether the potential air quality impacts of a project are significant are set forth in the South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook. The following daily thresholds for construction emissions have been established by the SCAQMD and are used in the analysis of air quality impacts for the proposed project.

- 75 pounds per day (lbs/day) of reactive organic compounds (ROC);
- 100 lbs/day of nitrogen oxide (NO_X);
- 550 lbs/day of carbon monoxide (CO);
- 150 lbs/day of particulate matter less than 10 microns in size (PM_{10});
- 55 lbs/day of particulate matter less than 2.5 microns in size ($PM_{2.5}$); and
- 150 lbs/day of sulfur oxide (SO_X).

Projects in the South Coast Air Basin (Basin) with construction-related emissions that exceed any of the emission thresholds above are considered potentially significant by the SCAQMD.

In addition to the significance thresholds listed above, the SCAQMD also requires analysis of localized air quality impacts. For this project, the appropriate Source Receptor Area (SRA) for Localized Significance Thresholds (LST) is Saddleback Valley (SRA No. 19), according to the SRA/City Table on the SCAQMD LST website.[1]

The closest residences to the proposed project are located to the north along Bake Parkway at a distance of approximately 1,500 ft (500 meters [m]). The closest commercial uses to the project site are located within 80 ft (25 m) of the construction areas. According to the SCAQMD's LST methodology, industrial and commercial uses are considered receptor locations for the pollutants with concentration standards based on averages of less than 24 hours. Therefore, since these uses are the closest receptor locations, the CO and NO_X LST impacts were calculated at a distance of 25 m. The $PM_{2.5}$ and PM_{10} LST impacts were calculated at a distance of 500 m. The following LST construction thresholds apply for this project:

- 140 lbs/day of NO_X at 25 m;
- 1,125 lbs/day of CO at 25 m;
- 132 lbs/day of PM_{10} at 500 m; and
- 77 lbs/day of $PM_{2.5}$ at 500 m.

The criteria used in this analysis as thresholds for impact significance are based on the Environmental Checklist questions, as listed above. The following summarizes construction emissions and associated impacts for the project site.

[1] www.aqmd.gov/ceqa/handbook/LST/LST.html.

Equipment Exhaust and Related Construction Activities. Construction of each of the project phases will include the following tasks: demolition, grading, building, and paving. While both the site preparation and grading phases involve heavy-duty diesel-powered equipment and both activities generate large amounts of fugitive dust, the grading phase typically generates greater overall emissions due to the larger equipment needed for earthmoving. Peak daily emissions associated with construction equipment exhaust for the proposed project during each of the construction tasks were calculated using the CalEEMod (Version 2011.1.1) model, are summarized in Table 4.3.A, and detailed in Appendix A. It is assumed that grading would not start until site preparation is finished and that, similarly, building construction would not start until grading is finished. Table 4.3.A shows that by complying with the SCAQMD's standard control measures, construction equipment/vehicle emissions during construction periods would not exceed any of the SCAQMD established daily emissions thresholds. No mitigation is required.

Fugitive Dust. Blowing dust, combined with engine emissions, produces airborne matter referred to in air quality studies as PM_{10}, $PM_{2.5}$, or fugitive dust. Fugitive dust emissions are generally associated with land clearing, exposure, and cut-and-fill operations. Once construction activities are complete, no further fugitive dust emissions occur. Dust generated daily during construction would vary substantially, depending on the level of activity, the specific operations, and weather conditions. Nearby sensitive receptors and on-site workers may be exposed to blowing dust, depending upon prevailing wind conditions. Fugitive dust would also be generated as construction equipment or trucks travel on unpaved areas of the construction site. The PM_{10} and $PM_{2.5}$ fugitive dust emissions are also included in Table 4.3.A.

Table 4.3.A: Peak-Day Construction Emissions (lbs/day) by Task

Construction Phase[1]	CO	ROG	NO_X	SO_2	PM_{10}[1]	$PM_{2.5}$[1]
2012	52.7	11.3	95.4	0.1	8.2	4.5
2013	32.4	59.6	37.8	0.1	4.2	3.0
SCAQMD Emissions Threshold	**550**	**75**	**100**	**150**	**150**	**55**
Exceed Significance?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Hans Giroux & Associates, July 2012.
[1] Total PM_{10} and $PM_{2.5}$ daily emissions with fugitive dust mitigation measures implemented.
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxide
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROG = reactive organic gases
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide

Since construction operations on site must comply with dust control and other measures prescribed by SCAQMD Rules 402 and 403 to ensure that short-term construction impacts are minimized, compliance with these rules is assumed in Table 4.3.A. Compliance with SCAQMD Rules 402 and 403 would ensure that fugitive dust (PM_{10} and $PM_{2.5}$) generation would be less than significant and no mitigation is required.

Localized Significance. The following analysis was undertaken consistent with SCAQMD *Final Localized Significance Threshold Methodology* (July 2008). The closest sensitive receptors to the various construction phases are located at a distance of more than 500 m. The closest commercial sites to the construction activities are located within 25 meters. Table 4.3.B shows the construction-related emissions of CO, NO_X, PM_{10}, and $PM_{2.5}$ compared to the LSTs for Saddleback Valley area at a distance of 25 and 500 m.

Table 4.3.B: Summary of On-site Construction Emissions, Localized Significance by Task

Construction Activity	Emission Rates (lbs/day)			
	CO	**NO_X**	**PM_{10}[1]**	**$PM_{2.5}$[1]**
Demolition	44	75	5	4
Grading	32	52	10	6
Building Construction	24	37	3	3
Paving	21	34	3	3
Localized Significance Threshold[2]	**1,125**	**140**	**132**	**77**
Exceed Significance?	**No**	**No**	**No**	**No**

Source: Hans Giroux & Associates, July 2012.
[1] Total PM_{10} and $PM_{2.5}$ daily emissions with fugitive dust mitigation measures implemented.
[2] 25 m distance used for CO and NO_X and 500 m distance used for PM_{10} and $PM_{2.5}$
CO = carbon monoxide
lbs/day = pounds per day
m = meters
NO_X = nitrogen oxide
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size

Table 4.3.B shows that the calculated emissions rates for the proposed on-site construction activities are below the localized significance thresholds for CO, NO_X, PM_{10}, and $PM_{2.5}$. Therefore, the proposed project would not cause any short-term localized air quality impacts, and no mitigation is required.

Long-Term (Operational) Emissions. Long-term air pollutant emission impacts are associated with any change in permanent use of the project site by on-site stationary and off-site mobile sources that substantially increase emissions. Stationary source emissions include emissions associated with electricity consumption and natural gas usage. Mobile source emissions would result from vehicle trips associated with the proposed project.

The daily operational emissions "significance" thresholds for criteria pollutants with regional effects established by the SCAQMD are as follows:

- 55 lbs/day of ROC;
- 55 lbs/day of NO_X;
- 550 lbs/day of CO;
- 150 lbs/day of PM_{10};
- 55 lbs/day of $PM_{2.5}$; and
- 150 lbs/day of SO_X.

Projects in the Basin with operations-related emissions that exceed any of the emission thresholds are considered potentially significant by the SCAQMD.

In addition to the significance criteria listed above, the SCAQMD also recommends analysis of localized air quality impacts. For this project, the appropriate SRA for LSTs is Saddleback Valley (SRA No. 19), according to the SRA/City Table on the SCAQMD LST website.[1] The closest residences to the proposed project are located to the north at a distance of approximately 1,500 ft (500 m). The closest commercial uses to the project site are located within 80 ft (25 m) of the construction areas. According to the SCAQMD's LST methodology, industrial and commercial uses are considered receptor locations for the pollutants with concentration standards based on averages of less than 24 hours. Therefore, since these uses are the closest receptor locations, the CO and NO_X LST impacts were calculated at a distance of 25 m. The $PM_{2.5}$ and PM_{10} LST impacts were calculated at a distance of 500 m. The following operational thresholds apply for this project.

- 140 lbs/day of NO_X at 25 m;
- 1,125 lbs/day of CO at 25 m;
- 36 lbs/day of PM_{10} at 500 m; and
- 22 lbs/day of $PM_{2.5}$ at 500 m.

Criteria Pollutants with Regional Effects. The proposed residential project will generate 1,231 average daily trips (ADT). Residential uses also generate small quantities of area source emissions derived from organic compounds from cleaning products, landscape maintenance, etc. The contribution of these sources is small and incorporated into the analysis. Using the default emission factors included in CalEEMod (Version 2011.1.1), emissions associated with project-related vehicular trips were calculated and are included in Table 4.3.C.

[1] www.aqmd.gov/ceqa/handbook/LST/LST.html.

Table 4.3.C: Operational Emissions

Source	Pollutants (lbs/day)					
	CO	**ROG**	**NO_X**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Area source emissions	62.9	19.8	0.9	0.1	8.1	8.1
Energy emissions	0.4	0.1	1.0	0.1	0.1	0.1
Operational (vehicle) emissions	65.8	6.3	12.3	0.1	14.1	1.0
Total Emissions	**129.3**	**26.2**	**14.2**	**0.3**	**22.3**	**9.2**
SCAQMD Threshold	**550**	**55**	**55**	**150**	**150**	**55**
Exceed SCAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Hans Giroux & Associates, July 2012.
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxide
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROG = reactive organic gases
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide

As shown in Table 4.3.C, project emissions (both stationary sources and vehicular sources) would not exceed the SCAQMD daily emissions thresholds. Therefore, the long-term air quality impacts of the proposed project are less than significant, and no mitigation measures are required.

Localized Significance. The following analysis was performed per SCAQMD *Final Localized Significance Threshold Methodology* (July 2008). The closest sensitive receptors to the various construction phases are located at a distance of more than 500 m. The closest commercial sites to the construction activities are located within 25 meters. Thus, LST values for 25 and 500 m were used.

Table 4.3.D shows the calculated emissions for the proposed operational activities (fully described above) compared to the LSTs for the Saddleback Valley area at a distance of 25 and 500 m. The localized significance analysis only includes on-site sources; therefore, the emissions shown include all stationary and 5 percent of the proposed project's mobile sources.

Table 4.3.D: Summary of Operation Emissions, Localized Significance

	Emission Rates (lbs/day)			
	CO	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	63.3	1.9	8.2	8.2
Localized Significance Threshold[1]	**1,125**	**140**	**36**	**22**
Exceed Significance?	**No**	**No**	**No**	**No**

Source: Hans Giroux & Associates, July 2012
[1] 25 m distance used for CO and NO_X and 500 m distance used for PM_{10} and $PM_{2.5}$
CO = carbon monoxide
lbs/day = pounds per day
m = meters
NO_X = nitrogen oxide
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size

Table 4.3.D shows that the calculated emissions rates for the proposed operation activities are below the localized significance thresholds for CO, NO_X, PM_{10}, and $PM_{2.5}$. Therefore, the proposed project would not cause any long-term localized air quality impacts, and no mitigation is required.

CO Hot-Spot Analysis. There is a direct relationship between traffic/circulation congestion and CO impacts since exhaust fumes from vehicular traffic are the primary source of CO. CO is a localized gas that dissipates very quickly under normal meteorological conditions. Therefore, CO concentrations decrease substantially as distance from the source (intersection) increases. The highest CO concentrations are typically found in areas adjacent to congested roadway intersections. These areas of vehicle congestion have historically had the potential to create pockets of elevated levels of CO which are called "hot spots." However, with the turnover of older vehicles, introduction of cleaner fuels and implementation of control technology on industrial facilities, CO concentrations in the project vicinity have steadily declined.

Micro-scale air quality impacts have traditionally been analyzed in environmental documents where the region was a non-attainment area for CO. However, the SCAQMD has demonstrated in the CO attainment redesignation request to the EPA that there are no "hot spots" anywhere in Southern California, even at intersections with much higher volumes, much worse congestion, and much higher background CO levels than anywhere in the project area. If the worst-case intersections in the air basin have no "hot spot" potential, any local impacts near the project site will be well below thresholds with an even larger margin of safety.

Significance Determination: Less than Significant.

Mitigation Measure: No mitigation is required.

Significance Determination After Mitigation: Less than Significant.

c) **Less than Significant Impact.** As discussed in Response 4.3.b, no exceedance of SCAQMD criteria pollutant emission thresholds would be anticipated for the proposed project. The projected emissions of criteria pollutants as a result of the proposed project are expected to be below the emissions thresholds established for the region. Cumulative emissions are part of the emission inventory included in the AQMP for the project area. Therefore, there would be no cumulatively considerable net increase of the criteria pollutants that are in nonattainment status in the Basin.

Significance Determination: Less than Significant.

Mitigation Measure: No mitigation is required.

Significance Determination After Mitigation: Less than Significant.

d) **Less than Significant Impact.** As described in Response 4.3.b, the proposed project would not significantly increase long-term emissions within the project area. Construction of the proposed project may expose surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). However, construction contractors will be required to implement measures to reduce or eliminate emissions by following SCAQMD standard construction practices. Therefore, sensitive receptors are not expected to be exposed to substantial pollutant concentrations during construction, and potential short-term impacts are considered less than significant.

Significance Determination: Less than Significant.

Mitigation Measures: No mitigation is required.

Significance Determination after Mitigation: Less than Significant.

e) **Less than Significant Impact.** Some objectionable odors may emanate from operation of diesel-powered construction equipment during construction of the project. These odors, however, would be limited to the site only during the construction period and, therefore, would not be considered a significant impact. Project operation would not result in objectionable odors. No mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No mitigation is required.

Significance Determination after Mitigation: Less than Significant.

4.6 BIOLOGICAL RESOURCES *Would the project:*		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
(b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
(c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
(d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
(e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
(f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion:

a) **Less than Significant Impact.** The project site consists of an irregular piece of land located south of the intersection of Bake Parkway and Portola Parkway in the City of Lake Forest. The northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land. The site has been subject to previous mass grading and is entirely surrounded by urban developed areas. The current ground surface of the parcel is approximately 3 ft below original ground surface. LSA Associates, Inc. (LSA) biologists performed a visual assessment of the property using detailed aerial photos and topographical maps. LSA conducted record searches (included in Appendix B) in the California Natural Diversity Data Base (CNDDB), United States Fish and Wildlife Service (USFWS), and California Native Plant Society's (CNPS) electronic databases for species expected to occur within the vicinity of the project study area. Current electronic database records reviewed by LSA included the following:

- CNDDB information (i.e., RareFind 3.1.0), administered by the California Department of Fish and Game (CDFG). This database covers lists of special-status animal and plant species, as well as sensitive natural communities that occur within California.
- CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994), which identifies four specific designations or ranks identified

by the California Rare Plant Rank (CRPR) of special-status plant species and summarizes regulations that provide for the conservation of special-status plants.

- USFWS species occurrence and critical habitat digital records.

There are no known occurrences of special-status species in the project vicinity. Vegetation observed on site consists of the typical nonnative ruderal grassland species associated with previously disturbed sites. The site appears to be regularly maintained for vegetation control, presumably by mowing. Ornamental landscaping, including eucalyptus trees, is present along the site perimeter. This ornamental landscaping is associated with off-site development and would be not be disturbed by project development, with the exception of 23 eucalyptus trees along Bake Parkway that may need to be removed (refer to response 4.6.e, provided below, for additional information). Native plant species may be present as scattered individuals, but do not provide native habitat. Wildlife expected to utilize the site include mainly commensal species such as desert cottontail (*Sylvilagus audubonii*) and Botta's pocket gopher (*Thomomys bottae*).

It is possible that raptors (e.g., hawks) may occasionally forage on site. However, implementation of the proposed project would not result in significant adverse impacts to raptors, as no trees suitable for nesting are present on site. In addition, large tracts of land supporting raptor foraging habitat have been set aside in the vicinity of the project site. These areas include, but are not limited to, Limestone Canyon and Whiting Ranch Wilderness Parks, which encompass approximately 4,300 ac, and the Cleveland National Forest, which encompasses approximately 460,000 ac of riparian and oak woodland canyons, rolling grassland, hills, and steep slopes of coastal sage scrub (CSS) and chaparral. When viewed in the context of how much raptor foraging habitat has already been conserved in Orange County and in the project vicinity, the quantity of raptor foraging habitat lost on site is not substantial.

No special-status species are anticipated on site due to lack of suitable habitat. The loss of disturbed, mostly nonnative habitat and the associated reduction of locally common wildlife populations are not considered significant impacts. The removal of on-site vegetation is not expected to have a significant adverse effect on candidate, sensitive, or special-status species, as defined by the CDFG or the USFWS. Therefore, any impacts to sensitive or special-status species would be less than significant, and no mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

b) **No Impact.** The project site consists of an irregular piece of land located south of the intersection of Bake Parkway and Portola Parkway in the City of Lake Forest. The northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land. LSA biologists examined detailed aerial photographs and topographical maps of the project site. The project site does not contain any

riparian habitat or sensitive natural communities identified in local or regional plans, policies, or regulations, or by the CDFG or the USFWS. No impacts related to riparian habitat or other sensitive natural communities identified in local or regional plans would result from project implementation, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

c) **No Impact.** LSA biologists examined detailed aerial photographs and topographical maps of the project site. The site has been previously graded and does not contain any natural hydrologic features or federally protected wetlands as defined by Section 404 of the Clean Water Act. Site drainage is captured in existing underground storm drains, presumably installed during the previous mass grading. Therefore, no direct removal, filling, or hydrological interruption of a wetland area would occur with development of the project site. No impact would occur, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

d) **Less than Significant with Mitigation Incorporated.** The project site is bordered to the north, east, and west by urban development. Because of the isolation of this site amidst urban development, the proposed project site does not function as a wildlife movement corridor. Those species observed on site are either able to fly in or are able to navigate on the ground through long stretches of urban development. Therefore, the project site does not contain any native resident or migratory fish, wildlife species, or wildlife corridors. As a result, no impacts are anticipated.

The existing ruderal grassland habitat and limited landscaping within the project site may, however, provide suitable habitat for nesting birds. While the likelihood of nesting birds occurring on site is very low considering the poor quality of the existing ruderal grassland habitat and the general lack of trees on site, there are existing trees located adjacent to the project site to the north and west along Portola Parkway and Bake Parkway that may provide habitat for nesting birds. Therefore, implementation of the proposed project would be subject to the provisions of the Migratory Bird Treaty Act (MBTA), which prohibits disturbing or destroying active nests. In addition, nests and eggs are protected under California Fish and Game Code Section 3503. Project implementation must be accomplished in a manner that avoids impacts to active nests during the breeding season. As such, the project is required to comply with the MBTA. As documented in Mitigation Measure B-1 (compliance with the MBTA), avoiding impacts can be accomplished through a variety of means, including

restricting tree removal to periods (August 15–February 15) outside the avian nesting season or through performance of nesting bird surveys prior to clearing when clearing occurs during the nesting season. With implementation of Mitigation Measure B-1, potentially significant impacts to nesting birds would be reduced to a level considered less than significant.

Significance Determination: Potentially Significant.

Mitigation Measure:

B-1 **Migratory Bird Treaty Act.** In the event that the Town Centre Residential Project (project) construction or grading activities should occur within the active breeding season for birds (i.e., February 15–August 15), a nesting bird survey shall be conducted by a qualified biologist prior to commencement of construction activities. If active nesting of birds is observed within 100 feet (ft) of the designated construction area prior to construction, the construction crew shall establish an appropriate buffer around the active nest. The designated project biologist shall determine the buffer distance based on the specific nesting bird species and circumstances involved. Once the project biologist verifies that the birds have fledged from the nest, the buffer may be removed. Prior to commencement of grading activities and issuance of any building permits, the City of Lake Forest (City) Director of Development Services, or designee, shall verify that all project grading and construction plans include specific documentation regarding the requirements of the Migratory Bird Treaty Act (MBTA), that preconstruction surveys have been completed and the results reviewed by staff, and that the appropriate buffers (if needed) are noted on the plans and established in the field with orange snow fencing.

Significance Determination After Mitigation: Less than Significant.

e) **Less than Significant with Mitigation Incorporated.** The City currently requires that a Eucalyptus Tree Cutting Permit be obtained prior to cutting, pruning, or removing any eucalyptus trees during the restricted period (April 1–October 31). There are several eucalyptus trees located on the boundary of the proposed project site and 23 eucalyptus trees along Bake Parkway may need to be removed as a result of project construction. Mitigation Measures B-2 requires that no eucalyptus trees would be cut, pruned, or removed during the restricted period (April 1–October 31) without approval of a Eucalyptus Tree Cutting Permit from the City of Lake Forest. Therefore, with implementation of Mitigation Measure B-2, the proposed project would not conflict with the provisions of the Eucalyptus Tree Cutting regulations and the proposed project would result in a less than significant impact related to local policies or ordinances protecting biological resources.

Significance Determination: Potentially Significant.

Mitigation Measures:

B-2 **Eucalyptus Tree Cutting Permit.** In the event eucalyptus trees would need to be cut, pruned, or removed during the restricted period (April 1–October 31), the project

applicant shall obtain a Eucalyptus Tree Cutting Permit from the City of Lake Forest. The following items must be submitted with the permit:

1. Site plan indicating the number and location of eucalyptus trees to be cut, pruned, or removed;
2. Small-scale vicinity map;
3. Written approval from Homeowner's or Business Association; and
4. Completed Eucalyptus Tree Cutting Permit Application Form.

Significance Determination After Mitigation: Less than Significant.

f) **No Impact.** The preparation of a comprehensive natural resources management conservation plan for Central and Coastal Orange County was completed in 1996. The Central and Coastal Orange County Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP) and the associated Implementation Agreement cover 13 cities, including Lake Forest. The purpose of the NCCP/HCP is to create a multispecies multihabitat reserve system and to implement a long-term management program that will protect CSS and the species that utilize this habitat. At the same time that it protects this habitat and species, the NCCP/HCP is also intended to allow for economical use of the lands that meet people's needs.

Under the NCCP/HCP, it was determined that the reserve design was sufficiently large and diverse and incorporated sufficient connectivity for purposes of wildlife movement. The NCCP Reserve design process focused on habitat contiguity and connectivity and the maintenance of wildlife dispersal and genetic flow for target species and other species integral to ecosystem diversity.

The reserve system covers over 37,000 ac of CSS, grasslands, riparian, chaparral, woodland, and forest habitats. This system extends into the City and includes, but is not limited to, the Whiting Ranch Wilderness Park. Activities within the reserve system are bounded by the allowable practices within the NCCP/HCP.

The project site is currently developed with a former car dealership in the north and vacant in the south. The project site is also surrounded by urban development. While the project site is located within the planning area of the NCCP/HCP, it is not located within the reserve system. The proposed project site is in an area identified in the NCCP/HCP as urbanized and is located in an area designated for development. Therefore, the project would be consistent with the NCCP/HCP, and no impacts would result.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

4.7 CULTURAL RESOURCES *Would the project:*		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
(b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
(c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
(d)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion:

a) **No Impact.** CEQA defines a "historical resource" as a resource that meets one or more of the following criteria: (1) listed in, or determined eligible for listing in, the California Register of Historical Resources (California Register); (2) listed in a local register of historical resources as defined in Public Resources Code (PRC) Section 5020.1(k); (3) identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (4) determined to be a historical resource by a project's Lead Agency (PRC Section 21084.1 and *State CEQA Guidelines* Section 15064.5(a)). The northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land subject to previous mass grading; there are no historical resources present on site. In addition, based on the age of the surrounding development, none of the adjacent structures would be eligible for listing in the California Register, and none is listed in a local register of historic places, identified, or determined to be a historic resource by the City. Therefore, the proposed project would not cause a substantial adverse change in the significance of a historical resource, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

b) **No Impact.** As stated above, the northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land that has been subject to previous mass grading. Original grading of the parcel during development of Foothill Ranch removed all sediments with the potential to contain in situ cultural resources. As a result, there is no potential for previously unknown subsurface archaeological resources to be encountered during site preparation activities. Further, the proposed project site is not located in an area of the City that has been identified as being sensitive for archaeological resources (refer to Figure RR-6 in the Recreation and Resources Element of the City's General Plan). Therefore, the proposed project would not cause a substantial adverse change in the significance of an archaeological resource, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

c) **Less than Significant with Mitigation Incorporated.** As stated above, the project site is currently developed with a former car dealership on the northern portion of the project and vacant land on the southern portion of the project. The entire project area was subject to mass grading when the area was developed between 1989 and 1990. The project is located in an area that is considered to be sensitive for paleontological resources, and paleontological resources were collected adjacent to and within the general vicinity of the current project area during the original mass grading of the area. The closest two localities are located along Portola Parkway on the northern margin of the project site and both contained whale bones. Sediments within the project area are from the late Miocene (5.4 to 4.3 million years ago) Oso Member of the Capistrano Formation. The Oso member of the Capistrano Formation has yielded and still has the potential to contain paleontological resources of major significance. The Natural History Museum of Los Angeles County (LACM) indicates that numerous fossil localities are known from the Oso Member of the Capistrano Formation and that some of the specimens recovered from nearby localities include whales, dolphins, sea lions, sea cows, bony fish, sharks, rays, turtles, crocodiles, birds, horses, rhinos, and camels. Grading to a depth of up to 10 ft is required for project implementation and may affect unknown buried paleontological resources. Therefore, there is a potential for significant fossil remains to be encountered during grading activities. Mitigation Measure C-1 requires a qualified paleontologist to be retained to monitor grading activities. Any collected specimens would be prepared, identified, cataloged, and donated to an accredited repository. Implementation of Mitigation Measure C-1 would ensure that impacts to paleontological resources are reduced to a less than significant level.

Significance Determination: Potentially Significant.

Mitigation Measure:

C-1: Paleontological Resources Impact Mitigation Program. Prior to commencement of any grading activity on site, the City of Lake Forest (City) Director of Development Services, or designee, shall verify that a paleontologist, who is listed on the County of Orange (County) list of certified paleontologists, has been retained by the Town Centre Residential Project (project) applicant and either the paleontologist, or a representative, shall be on site during all rough grading and other significant ground-disturbing activities in native soils. A paleontologist shall not be required on site if excavation is only occurring in Artificial Fill.

Prior to the beginning of monitoring, the paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed project. The PRIMP should be consistent with the guidelines of the Society of

Vertebrate Paleontologists (SVP) (SVP, 1995 and 2010) and shall include but not be limited to the following:

- Attendance at the pregrade conference in order to explain the mitigation measures associated with the project.
- During construction excavation, a qualified vertebrate paleontological monitor shall initially be present on a full-time basis whenever excavation shall occur within the sediments that have a high paleontological sensitivity rating and on a spot-check basis in sediments that have a low sensitivity rating. Based on the significance of any recovered specimens, the qualified paleontologist may set up conditions that shall allow for monitoring to be scaled back to part-time as the project progresses. However, if significant fossils begin to be recovered after monitoring has been scaled back, conditions shall also be specified that would allow increased monitoring as necessary. The monitor shall be equipped to salvage fossils and/or matrix samples as they are unearthed in order to avoid construction delays. The monitor shall be empowered to temporarily halt or divert equipment in the area of the find in order to allow removal of abundant or large specimens.
- The underlying sediments may contain abundant fossil remains that can only be recovered by a screening and picking matrix; therefore, these sediments shall be occasionally be spot-screened through 1/8 to 1/20-inch mesh screens to determine whether microfossils exist. If microfossils are encountered, additional sediment samples (up to 6,000 pounds [lbs]) shall be collected and processed through 1/20-inch mesh screens to recover additional fossils. Processing of large bulk samples is best accomplished at a designated location within the project that shall be accessible throughout the project duration but shall also be away from any proposed cut or fill areas. Processing is usually completed concurrently with construction, with the intent to have all processing completed before, or just after, project completion. A small corner of a staging or equipment parking area is an ideal location. If water is not available, the location should be accessible for a water truck to occasionally fill containers with water.
- Preparation of recovered specimens to a point of identification and permanent preservation. This includes the washing and picking of mass samples to recover small invertebrate and vertebrate fossils and the removal of surplus sediment from around larger specimens to reduce the volume of storage for the repository and the storage cost for the developer.
- Identification and curation of specimens into a museum repository with permanent retrievable storage, such as the Natural History Museum of Los Angeles County (LACM).
- Preparation of a report of findings with an appended itemized inventory of specimens. When submitted to the City Director of Development Services, or designee, the report and inventory would signify completion of the program to mitigate impacts to paleontological resources.

Significance Determination After Mitigation: Less than Significant.

d) **Less than Significant with Mitigation Incorporated.** No known human remains are present on site, and there are no facts or evidence to support the idea that Native Americans or people of European descent are buried on site. However, ground-disturbing activities associated with the project have the potential to disturb previously unknown human remains. In the unlikely event that human remains are encountered during project grading, the proper authorities would be notified, and standard procedures for the respectful handling of human remains during earthmoving activities would be adhered to as specified in Mitigation Measure C-2. Implementation of Mitigation Measure C-2 would reduce potential project impacts related to the discovery of human remains on site to a less than significant level.

Significance Determination: Potentially Significant.

Mitigation Measure:

C-2 Consistent with the requirements of California Code of Regulations (CCR) Section 15064.5(e), if human remains are encountered, work within 25 feet (ft) of the discovery shall be redirected and the County Coroner notified immediately. State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. If the remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC), which shall determine and notify a Most Likely Descendant (MLD). With the permission of the City, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. Consistent with CCR Section 15064.5(d), if the remains are determined to be Native American and an MLD is notified, the City shall consult with the MLD as identified by the NAHC to develop an agreement for treatment and disposition of the remains.

Upon completion of the assessment, the consulting archaeologist shall prepare a report documenting the methods and results and provide recommendations regarding the treatment of the human remains and any associated cultural materials, as appropriate, and in coordination with the recommendations of the MLD. The report should be submitted to the City's Director of Development Services, or designee, and the South Central Coastal Information Center (SCCIC). The City's Director of Development Services, or designee, shall be responsible for reviewing any reports produced by the archaeologist to determine the appropriateness and adequacy of findings and recommendations.

Significance Determination After Mitigation: Less than Significant.

4.8 GEOLOGY AND SOILS *Would the project:*	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☒	☐	☐
(b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐
(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☒	☐	☐
(e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Discussion:

a) i) **Less than Significant Impact.** As with all of Southern California, the project site is subject to strong ground motion resulting from earthquakes on nearby faults. Nonetheless, according to the *Geotechnical Evaluation of the Proposed Residential Development of The Village at Foothill Ranch, City of Lake Forest, California* (LGC Geotechnical, Inc., November 2011), there are no known active faults crossing the site. In addition, the site does not lie within the boundaries of an Alquist-Priolo Earthquake Fault Zone as defined by the State of California in the Alquist-Priolo Earthquake Fault Zoning Act. The nearest mapped active fault, the Elsinore Fault, is located approximately 10 miles (mi) (16 kilometers [km]) away from the project site. Therefore, the possibility of damage due to ground rupture is considered low since no active faults are known to transect the project site. No mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

ii) **Less than Significant with Mitigation Incorporated.** The proposed project site, and all of Southern California, is located in an active seismic region. Ground shaking resulting from

earthquakes associated with both nearby and more distant faults is likely to occur. During the life of the project, seismic activity associated with active faults in the area may generate moderate to strong shaking on site. Based on the findings of the *Evaluation of the Proposed Residential Development of The Village at Foothill Ranch, City of Lake Forest, California* (LGC Geotechnical, Inc., November 2011), the average peak ground acceleration (PGA) for the project site is 0.37 g (acceleration due to gravity). Therefore, ground shaking generated by fault movement is considered a potentially significant impact that may potentially affect the proposed project. All applicable guidelines, including compliance with the California Building Code (CBC), accepted industry standards, and other regional and local regulations that address seismic hazards, are incorporated into project building plans. Compliance with State and local building code requirements and Mitigation Measure G-1 would result in potential project impacts related to seismic ground shaking being reduced to levels considered to be less than significant.

Significance Determination: Potentially Significant.

Mitigation Measure:

G-1 **Geotechnical Requirements and Seismic Design Standards.** All grading operations and construction shall be conducted in accordance with governing building codes and in conformance with the recommendations included in the geotechnical report on the proposed Town Centre Residential Project (project) site titled *Evaluation of the Proposed Residential Development of The Village at Foothill Ranch, City of Lake Forest, California* (LGC Geotechnical, Inc., November 2011) (included in Appendix C of this Initial Study/Mitigated Negative Declaration [IS/MND]). Unless superseded by other regulatory provisions or standards, seismic design criteria shall be developed on the basis of the requirements of the City of Lake Forest (City) Building Code. Prior to issuance of building permits, the City's Building Official, or designee, shall review and approve final design plans and the recommendations of the project geotechnical consultant as summarized in a final written report.

Significance Determination After Mitigation: Less than Significant.

iii) **Less than Significant Impact.** Liquefaction commonly occurs when three conditions are present simultaneously: (1) high groundwater; (2) relatively loose, cohesionless (sandy) soil; and (3) earthquake-generated seismic waves. The presence of these conditions may cause a loss of shear strength and, in many cases, ground settlement. Seismically induced liquefaction and settlement were investigated as part of the *Evaluation of the Proposed Residential Development of The Village at Foothill Ranch, City of Lake Forest, California* (LGC Geotechnical, Inc., November 2011). According to the United States Geological Survey (USGS)/California Geological Survey (CGS) Seismic Hazard Zones Map, the proposed project site is not located within an area subject to liquefaction. Further, based on the proposed finished grades, depth of compacted fill, and lack of a shallow groundwater table,

the potential for post construction liquefaction and liquefaction-induced settlement is considered to be less than significant, and no mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

iv) **Less than Significant with Mitigation Incorporated.** While seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes in areas with significant ground slopes, the proposed project site has been previously graded and is relatively flat. The potential for earthquake induced landslides were investigated as part of the *Evaluation of the Proposed Residential Development of The Village at Foothill Ranch, City of Lake Forest, California* (LGC Geotechnical, Inc., November 2011). According to the USGS/CGS Seismic Hazard Zones Map, no existing landslides are present on or adjacent to the property. In addition, the site lies far enough from the nearest significant upland slopes to preclude the hazards of induced landsliding. The potential for seismically induced landsliding to occur at the site is less than significant, and no mitigation is required.

The potential for future slope instability would be limited to proposed cut-and-fill slopes that would be manufactured as part of the proposed grading operations. All grading operations and construction would be conducted in conformance with applicable California Occupational Safety and Health Administration (Cal/OSHA) Construction Safety Orders, City grading regulations, and the City's building code. According to the *Evaluation of the Proposed Residential Development of The Village at Foothill Ranch, City of Lake Forest, California* (LGC Geotechnical, Inc., November 2011), vertical excavations up to approximately 3 ft may be considered temporarily stable, but given the sandy nature of the soils on the project site, excavations deeper than 3 ft may need to be either laid back at a 1.5:1 (horizontal to vertical) gradient or may require use of shoring. Compliance with applicable local and State regulations, as well as the recommendations in the Geotechnical Evaluation for the proposed project, as required in Mitigation Measure G-1 would reduce potential project impacts related to potential slope failure to a less than significant level.

Significance Determination: Potentially Significant.

Mitigation Measures: Refer to Mitigation Measure G-1.

Significance Determination After Mitigation: Less than Significant.

b) **Less than Significant with Mitigation Incorporated.** During construction activities, soil would be exposed and disturbed, drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. As discussed in Section 4.9 and specified in Mitigation

Measure WQ-1, the Construction General Permit requires preparation of a Storm Water Pollution Prevention Plan (SWPPP) to identify Construction Best Management Practices (BMPs) to be implemented as part of the proposed project to reduce impacts to water quality during construction, including those impacts associated with soil erosion and siltation. With implementation of the Construction BMPs as specified in Mitigation Measure WQ-1, impacts related to on- or off-site erosion or siltation would be less than significant.

Operation of the proposed project would result in a slight alteration of the existing on-site drainage patterns. According to the *Preliminary Hydrology and Hydraulic Report* (Appendix D) prepared for the project, in the current condition, 80 percent of runoff from the project site drains in a southwesterly direction to an existing 30-inch reinforced concrete pile storm drain that runs west from an existing catch basin in the northern portion of Auto Center Drive to an existing catch basin on Bake Parkway. Runoff from the remainder of the project site drains as surface flow in a southeasterly direction to Auto Center Drive and then to an existing catch basin at the corner of Auto Center Drive and Towne Centre Drive. The proposed project would include one main storm drain line (30-inch) that would collect runoff from a series of catch basins on the proposed main driveway and then convey the runoff west to the existing storm drain facility in Bake Parkway. In the proposed condition, 6.42 ac of the site would be impervious surface areas and not prone to erosion or siltation. The remaining 1.14 ac of the site would be landscaping and the bio-retention BMPs, which would collect and treat runoff and minimize erosion and siltation.

As a result of the increase in impervious surface area, the proposed project is anticipated to increase runoff volumes from 0.9 acre-feet (af) to 1.15 af for a 2-year, 24-hour runoff volume (an increase of 0.25 af or 28 percent). The proposed project would also increase the 2-year, 24-hour time of concentration from 8.50 minutes to 11.03 minutes (an increase of 2.13 minutes or 25 percent). However, with implementation of BMPs, the proposed project would reduce the peak flow rate from 13.75 cubic feet per second (cfs) to 11.91 cfs for a 2-year storm event (a decrease of 1.84 cfs or 13 percent).

Because the peak flow rate of runoff from the site would be lower than existing conditions, the proposed project would not result in substantial soil erosion or the loss of topsoil.

Significance Determination: Potentially Significant.

Mitigation Measures: Refer to Mitigation WQ-1.

Significance Determination After Mitigation: Less than Significant.

c) **Less than Significant with Mitigation Incorporated.** As previously stated, the proposed project site is relatively flat. There are no existing landslides on or adjacent to the project site, and the potential for seismically induced landsliding to occur at the site is considered to be less than significant. No mitigation is required.

Seismically induced lateral spreading involves lateral movement of earth materials due to ground shaking. Lateral spreading is generally caused by liquefaction of soils with gentle

slopes. Since the property is relatively flat and the potential for liquefaction to occur on site is considered very low, the risk of lateral spreading is considered less than significant, and no mitigation is required.

Differential settlement or subsidence could occur if buildings or other improvements are built on low-strength foundation materials (including imported fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native material and fill). Although differential settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time. Soils susceptible to hydro collapse typically include loose, slightly cemented granular materials. According to the *Evaluation of the Proposed Residential Development of The Village at Foothill Ranch, City of Lake Forest, California* (LGC Geotechnical, Inc., November 2011), a thin layer of alluvial soil left in place during previous grading activities on the project site, has the potential to collapse up to approximately 0.5 inch when inundated with water. The potential for differential settlement to occur would be considered a potentially significant impact of the proposed project. As required by Mitigation Measure G-1, the project foundation system would be required to be designed to accommodate an anticipated differential settlement of approximately 0.5 inch in 40 ft due to the potential for hydroconsolidation. With implementation of Mitigation Measure G-1, potential impacts related to differential settlement would be reduced below a level of significance.

Corrosive soils contain chemical constituents that may cause damage to construction materials such as concrete and ferrous metals. One such constituent is water-soluble sulfate, which, if high enough in concentration, can react with and damage concrete. Electrical resistivity, chloride content, and percentage of hydrogen (pH) level are indicators of the soil's tendency to corrode ferrous metals. Corrosive testing performed on soil samples from the project site indicate a pH of 7.3, chloride content of 31 parts per million (ppm), a sulfate content of 55 ppm, and a minimum resistivity of 1,350 ohm-centimeter (ohm-cm). These results indicate that the on-site soils may be corrosive to buried metal, which is a potentially significant impact of the proposed project. Mitigation Measure G-2 requires protection of steel against corrosion. Corrosion protection may include, but is not limited to, sacrificial metal, the use of protective coatings, and/or cathodic protection. With implementation of Mitigation Measure G-2, potential impacts related to corrosive soils would be reduced to a less than significant level.

Therefore, for the reasons listed above, the potential for on- or off-site landslide, lateral spreading, subsidence, or liquefaction is less than significant, and no mitigation is required. Compliance with applicable local and State regulations, as well as the recommendations in the Geotechnical Evaluation for the proposed project, as required in Mitigation Measure G-1 would reduce potential project impacts related to potential differential settlement to a less than significant level. Mitigation Measure G-2 requires protection of steel against corrosion. With implementation of Mitigation Measure G-2, potential impacts related to corrosive soils would be reduced to a less than significant level.

Significance Determination: Potentially Significant.

Mitigation Measures: Refer to Mitigation Measure G-1.

G-2 **Corrosive Soils.** Prior to issuance of a building permit, the Director of the City Development Services, or designee, shall recommend that the applicant retain the services of a licensed corrosion engineer to evaluate the as-graded soil corrosivity characteristics and to provide detailed corrosion protection measures. Where steel may come in contact with on-site soils, project construction shall include the use of steel that is protected against corrosion. Corrosion protection may include, but is not limited to, sacrificial metal, the use of protective coatings, and/or cathodic protection. Additional site testing and final design evaluation regarding the possible presence of significant volumes of corrosive soils on site shall be performed by the licensed project corrosion engineer to refine and enhance these recommendations. On-site inspection during grading shall be conducted by the project corrosion consultant and City Building Official to ensure compliance with corrosion specifications as incorporated into project plans.

Significance Determination After Mitigation: Less than Significant.

d) **Less than Significant with Mitigation Incorporated.** Expansive soils contain types of clay minerals that occupy considerably more volume when they are wet or hydrated than when they are dry or dehydrated. Volume changes associated with changes in the moisture content of near-surface expansive soils can cause uplift or heave of the ground when they become wet or, less commonly, cause settlement when they dry out. According to the *Evaluation of the Proposed Residential Development of The Village at Foothill Ranch, City of Lake Forest, California* (LGC Geotechnical, Inc., November 2011), the results of an expansion potential test indicated an expansion index ranging from 8 to 24, which corresponds to the "Very Low" category. However, since the expansion index range exceeds 20, the potential for expansive soil to be found on the project site cannot be ruled out and the foundation system of proposed structures would be required to be designed to withstand the effects of expansive soil. The potential for expansive soils in areas proposed for construction would be considered a potentially significant impact. Construction techniques that are employed to address potential adverse effects of expansive soils may include, but are not limited to, deepened foundations, post-tension foundations, and moisture conditioning. Mitigation Measure G-3 incorporates the recommendations of the Geotechnical Evaluation (Appendix C of this IS/MND) related to expansive soils. Adherence to Mitigation Measure G-3 would reduce project impacts related to expansive soils to a less than significant level.

Significance Determination: Potentially Significant.

Mitigation Measures:

G-3 **Expansive Soils.** Prior to issuance of building permits, the Director of the City Development Services, or designee, shall review and approve final design plans and the recommendations of the project geotechnical consultant related to expansive soils

as summarized in a final written report. Mitigation may include, but is not limited to, additional remedial grading, premoistening of soils, use of nonexpansive material, post-tensioned slabs, construction of nonexpansive building pads, or use of caisson foundations. During construction, the project soils engineer shall verify that expansive soil mitigation measures are implemented, and the City Building Official shall make site inspections to ensure compliance with approved measures.

Significance Determination After Mitigation: Less than Significant.

e) **No Impact.** The proposed project does not include construction of or connections to septic tanks or alternative waste water disposal systems. Therefore, the project would not result in impacts related to the soil capability to adequately support the use of septic tanks or alternative wastewater disposal systems, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

4.9 GREENHOUSE GAS EMISSIONS *Would the project:*		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
(b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion:

The following response applies to Questions 4.7.a and 4.7.b.

a-b) **Less than Significant Impact.** Global climate change (GCC) is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other significant changes in climate (such as precipitation or wind) that last for an extended period of time. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures.

The prevailing scientific opinion on climate change is that "most of the warming observed over the last 50 years is attributable to human activities."[1] Increased amounts of carbon dioxide (CO_2) and other greenhouse gases (GHGs) are the primary causes of the human-induced component of warming. The observed warming effect associated with the presence of GHGs in the atmosphere (from either natural or human sources) is often referred to as the greenhouse effect.[2]

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced GCC are:[3]

- CO_2
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)

[1] Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Working Group I: The Physical Science Basis*. http://www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html. Accessed July 26, 2011.

[2] The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse lets heat from sunlight in and reduces the amount of heat that escapes, greenhouse gases like carbon dioxide, methane, and nitrous oxide in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, although an excess of greenhouse gas results in global warming, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

[3] The greenhouse gases listed are consistent with the definition in Assembly Bill (AB) 32 (Government Code 38505), as discussed later in this section.

- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)

In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order (EO) S-3-05. The EO established the following goals for the State of California: GHG emissions were to be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80 percent below 1990 levels by 2050.

California's major initiative for reducing GHG emissions is outlined in Assembly Bill (AB) 32, the "Global Warming Solutions Act," passed by the California State legislature on August 31, 2006. AB 32 requires the California Air Resources Board (ARB) to:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions, by January 1, 2008;
- Adopt mandatory reporting rules for significant sources of GHG emissions by January 1, 2008;
- Adopt an emissions reduction plan by January 1, 2009, indicating how emissions reductions will be achieved via regulations, market mechanisms, and other actions; and
- Adopt regulations to achieve the maximum technologically feasible and cost-effective reduction of GHGs by January 1, 2011.

To assist public agencies in the mitigation of GHG emissions or analyzing the effects of GHGs under CEQA, including the effects associated with transportation and energy consumption, Senate Bill (SB) 97 (Chapter 185, 2007) required the Governor's Office of Planning and Research (OPR) to develop CEQA guidelines on how to minimize and mitigate a project's GHG emissions. OPR was required to prepare, develop, and transmit these guidelines on or before July 1, 2009, and the Resources Agency was required to certify and adopt them by January 1, 2010. On January 8, 2009, OPR released preliminary draft CEQA guideline amendments. The Natural Resources Agency adopted the CEQA Guidelines Amendments and transmitted them to the Office of Administrative Law (OAL) on December 31, 2009. On February 16, 2010, the OAL approved the Amendments and filed them with the Secretary of State for inclusion in the California Code of Regulations (CCR). The Amendments became effective on March 18, 2010. The Amendments encourage Lead Agencies to consider many factors in conducting a CEQA analysis, but preserve the discretion granted by CEQA to Lead Agencies in making their determinations.

State CEQA Guidelines Section 15064.4 states:

> (a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

> (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; or
>
> (2) Rely on a qualitative analysis or performance based standards.
>
> (b) A lead agency may consider the following when assessing the significance of impacts from greenhouse gas emissions on the environment:
>
> (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
>
> (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
>
> (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

State CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

As such, currently neither the CEQA statutes, OPR guidelines, nor the *State CEQA Guidelines* prescribe specific quantitative thresholds of significance or a particular methodology for performing an impact analysis. As with most environmental topics, significance criteria are left to the judgment and discretion of the Lead Agency.

The recommended approach for GHG analysis included in the Governor's OPR June 2008 Technical Advisory (TA) is to: (1) identify and quantify GHG emissions, (2) assess the significance of the impact on climate change, and (3) if significant, identify alternatives

and/or mitigation measures to reduce the impact below significance.[1] The June 2008 OPR guidance provides some additional direction regarding planning documents as follows: "CEQA can be a more effective tool for GHG emissions analysis and mitigation if it is supported and supplemented by sound development policies and practices that will reduce GHG emissions on a broad planning scale and that can provide the basis for a programmatic approach to project-specific CEQA analysis and mitigation. For local government Lead Agencies, adoption of general plan policies and certification of general plan EIRs that analyze broad jurisdiction-wide impacts of GHG emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews."

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 metric tons of CO_2 equivalent (CO_2e)/year (yr). In September 2010, the Working Group released revisions which recommended a threshold of 3,500 metric tons of CO_2e for residential projects. This 3,500 metric tons per year recommendation has been used as a guideline for this analysis.

For the purpose of this technical analysis, the concept of CO_2e is used to describe how much global warming a given type and amount of GHG may cause, using the functionally equivalent amount or concentration of CO_2 as the reference. Individual GHGs have varying global warming potentials and atmospheric lifetimes. The CO_2e is a consistent methodology for comparing GHG emissions since it normalizes various GHG to the same metric. The reference gas is CO_2, which has a global warming potential equal to 1.

The equation below provides the basic calculation required to determine CO_2e from the total mass of a given GHG using the global warming potentials published by the Intergovernmental Panel on Climate Change (IPCC).

$$\text{Tons (Metric Tons) of } CO_2e = \text{Tons (Metric Tons) of GHG} \times \text{GWP}$$

Where: CO_2e = carbon dioxide equivalent
GHG = greenhouse gas
GWP = global warming potential

This method was used to evaluate GHG emissions during construction and operation of the proposed project. For this analysis only, CO_2, CH_4, and N_2O are considered. This is due to the relatively large contribution of these gases in comparison to other GHGs produced during the project construction and operation phases.

The GHG emission estimates were calculated using CalEEMod (Version 2011.1.1). CalEEMod stands for "California Emissions Estimator Model," and is an air quality modeling program that estimates air pollution emissions in lbs/day or tons per year for various land uses, area sources, construction projects, and project operations. Mitigation measures can also

[1] State of California, 2008. Governor's Office of Planning and Research. *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act Review*. June 19.

be specified to analyze the effects of mitigation on project emissions. CalEEMod estimates a project's CO_2, N_2O, and CH_4 emissions from area and mobile sources, energy and water consumption, and waste generation.

An individual project cannot generate enough GHG emissions to substantially influence climate change, but individual projects can incrementally contribute toward the potential for the cumulative emissions driving GCC. This analysis analyzes whether the project's contributions combined with emissions from all other past, present, and probable future projects contribute toward the potential for GCC on a cumulative basis and whether the project's contribution to the impact is "cumulatively considerable."

Construction and operation of project development would generate GHG emissions, with the majority of energy consumption (and associated generation of GHG emissions) occurring during the project's operation (as opposed to its construction). Typically, more than 80 percent of the total energy consumption takes place during the use of buildings, and less than 20 percent is consumed during construction.[1]

Overall, the following activities associated with the proposed project could directly or indirectly contribute to the generation of GHG emissions:

- **Removal of Vegetation:** The removal of vegetation for construction results in a loss of the CO sequestration in plants. However, planting of additional vegetation would result in additional CO sequestration and would reduce the GHG emissions of the project.
- **Construction Activities:** During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O.
- **Gas, Electricity, and Water Use:** Natural gas use results in the emissions of two GHGs: CH_4 (the major component of natural gas) and CO_2 (from the combustion of natural gas). Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California's water conveyance system is energy-intensive. Approximately one-fifth of the electricity and one-third of the nonpower plant natural gas consumed in California are associated with water delivery, treatment, and use.[2]
- **Solid Waste Disposal:** Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH_4 from the anaerobic decomposition of organic materials. CH_4 is 25 times more potent a GHG than CO_2. However, landfill CH_4 can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.

[1] United Nations Environment Programme (UNEP), 2007. *Buildings and Climate Change: Status, Challenges and Opportunities*, Paris, France.

[2] California Air Resources Board (ARB), 2010. *Economic Sectors Portal*. Website: www.arb.ca.gov/cc/ghgsectors/ghgsectors.htm. Accessed January 5, 2010.

- **Motor Vehicle Use:** Transportation associated with the proposed project would result in GHG emissions from fuel combustion in daily automobile and truck trips. CO_2 is the most significant GHG emitted by vehicles, but lesser amounts of CH_4 and N_2O are also emitted in vehicle exhaust.

Construction GHG Emissions. GHG emissions associated with the project would occur over the short term from construction activities, consisting primarily of emissions from equipment exhaust. As discussed below, there would also be long-term regional emissions associated with project-related vehicular trips and stationary source emissions such as natural gas used for heating. The calculation presented below includes construction emissions in terms of CO_2 and annual CO_2e GHG emissions from increased energy consumption, water usage, and solid waste disposal, as well as estimated GHG emissions from vehicular traffic that would result from implementation of the project.

GHG emissions generated construction of the proposed project would predominantly consist of CO_2. In comparison to criteria air pollutants such as ozone (O_3) and PM_{10}, CO_2 emissions persist in the atmosphere for a substantially longer period of time. While emissions of other GHGs such as CH_4 are important with respect to GCC, emission levels of other GHGs are less dependent on the land use and circulation patterns associated with the proposed land use development project than are levels of CO_2.

Construction activities produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

The build-out timetable for this project is estimated by CalEEMod to be approximately 14 months. During project construction, the CalEEMod computer model predicts that the constructions activities will generate the annual CO_2e emissions identified in Table 4.7.A.

Table 4.7.A: Construction Greenhouse Gas Emissions

Year	CO_2e Emissions (Metric Tons)
2012	707.6
2013	56.5
Total	**764.1**

Source: Hans Giroux & Associates, July 2012.
CO_2e = carbon dioxide equivalent

SCAQMD GHG emissions policy from construction activities is to amortize emissions over a 30-year lifetime. The amortized level from 764.1 metric tons of CO_2e is 25.5 metric tons per year, which is well below the SCAQMD threshold of 3,500 metric tons per year. Therefore,

GHG impacts from construction are considered less than significant. No mitigation is required.

Operational GHG Emissions. Long-term operation of the proposed project would generate GHG emissions from area and mobile sources and indirect emissions from stationary sources associated with energy consumption. Mobile-source emissions of GHGs would include project-generated vehicle trips associated with on-site facilities and customers/employees/ deliveries to the project site. Area-source emissions would be associated with activities such as landscaping and maintenance of proposed land uses, natural gas for heating, and other sources. Increases in stationary source emissions would also occur at off-site utility providers as a result of demand for electricity, natural gas, and water by the proposed uses.

The GHG emission estimates presented in Table 4.7.B show the emissions associated with the level of development at build out. Appendix A includes the annual CalEEMod calculations for GHG emissions. Table 4.7.B shows that project operations would result in average annual emissions of 2,521.2 metric tons of CO_2e/yr.

Table 4.7.B: Project Greenhouse Gas Emissions

Emission Sources	CO_2e Emissions (Metric Tons)
Area Sources	114.1
Energy Consumption	394.8
Mobile Sources	1,888.8
Waste Generation	31.6
Water Consumption	66.4
Annualized Construction	25.5
Total Annual Emissions	**2,521.2**

Source: Hans Giroux & Associates, July 2012.
CO_2e = carbon dioxide equivalent

Total project GHG emissions are less than the proposed significance threshold of 3,500 metric tons per year.

Summary. The proposed project would generate up to 2,521.2 metric tons of CO_2e/yr of new emissions, as shown in Table 4.7.B. The emissions from vehicle exhaust would comprise approximately 75 percent of the project's total CO_2e emissions. Tailpipe emission controls are within the jurisdiction of the State and federal governments and are outside the control of the City.

The remaining CO_2e emissions are primarily associated with building heating systems and increased regional power plant electricity generation due to the project's electrical demands. The project would comply with existing State and federal regulations regarding the energy efficiency of buildings, appliances, and lighting, which would reduce the project's electricity

demand. The new buildings constructed in accordance with current energy efficiency standards would be more energy efficient than older buildings.

At present, there is a federal ban on chlorofluorocarbons (CFCs); therefore, it is assumed the project would not generate emissions of CFCs. The project may emit a small amount of HFC emissions from leakage and service of refrigeration and air conditioning equipment and from disposal at the end of the life of the equipment. However, the details regarding refrigerants to be used in the project site are unknown at this time. PFCs and SF_6 are typically used in industrial applications, none of which would be used on site. Therefore, it is not anticipated that the project would contribute significant emissions of these additional GHGs.

As stated above, forecast emissions indicate that the project, during operation, would not exceed the interim numerical standard of 3,500 metric tons of CO_2e/yr. Therefore, the project's contribution to cumulative GHG emissions would be less than significant.

Significance Determination: Less than Significant.

Mitigation Measures: No mitigation is required.

Significance Determination after Mitigation: Less than Significant.

4.10 HAZARDS AND HAZARDOUS MATERIALS *Would the project:*		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a)	Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?	☐	☐	☒	☐
(b)	Create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
(c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
(d)	Be located on a site which is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
(e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
(f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
(g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
(h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Discussion:

The following discussion is based on information contained within the *Phase I Environmental Site Assessment Report* (May 2011) prepared for the proposed project and contained within Appendix E of this IS/MND.

a) **Less than Significant Impact.** Hazardous materials are chemicals that could potentially cause harm during an accidental release or mishap, and they are defined as being toxic, corrosive, flammable, reactive, an irritant, or a strong sensitizer. Hazardous substances include all chemicals regulated under the United States Department of Transportation (DOT) "hazardous material" regulations and the United States Environmental Protection Agency (EPA) "hazardous waste" regulations. Hazardous wastes require special handling and disposal because of their potential to damage public health and the environment. The probable frequency and severity of consequences from the use, transport, or disposal of hazardous materials is affected by the type of substance, quantity used or managed, and nature of the activities and operations.

Exposure to hazardous materials during the construction and operation of the proposed on-site uses could result from (1) the improper handling or use of hazardous substances;

(2) transportation accident; or (3) inadvertent release resulting from an unforeseen event (e.g., fire, flood, or earthquake). The severity of any such exposure is dependent upon the type, amount, and characteristic of the hazardous material involved; the timing, location, and nature of the event; and the sensitivity of the individual or environment affected.

Implementation of the proposed project would result in the demolition of all existing buildings, foundations, and asphalt and concrete pavement currently located on the northern portion (i.e., northern parcel) of the site. As identified in the *Phase I Environmental Site Assessment Report* (Phase I ESA), the southern portion (i.e., southern parcel) of the site is vacant, and no demolition is required. As noted in the Phase I ESA, the existing structure that is located on the northern portion of the site is a former single-story automobile dealership and service center totaling approximately 25,500 sf that was constructed in 2005. Because the structure was built in 2005, no materials on site are identified as potentially containing asbestos and lead-based paint; therefore, demolition waste would be suitable for disposal in a Class Ill municipal landfill. Therefore, the project would not result in the transport and disposal of hazardous materials such as asbestos-containing materials and lead-based paint.

Construction of the proposed project would involve the use of chemical agents, solvents, paints, and other hazardous materials that are associated with demolition and construction activities. The amount of hazardous chemicals present during construction would be limited and would be handled in compliance with existing government regulations. The potential for the release of hazardous materials during project construction is low and, even if a release would occur, it would not result in a significant hazard to the public, surrounding land uses, or environment due to the small quantities of these materials used during construction.

It is anticipated that during the operational phase, residences would not include uses requiring the use, storage, disposal, or transport of large volumes of hazardous materials that could cause serious environmental damage in the event of an accident. Residential uses typically do not present a hazard associated with the accidental release of hazardous substances into the environment. Hazardous substances associated with residential uses include cleaners, paint, and pesticides and would be limited in their use. In addition, these residential hazardous materials are typically found in small quantities and can be contained without impacting the environment. Project operation would involve the use of potentially hazardous materials (e.g., solvents, cleaning agents, paints, fertilizers, pesticides) typical of residential uses that, when used correctly and in compliance with existing laws and regulations, would not result in a significant hazard to residents or workers in the vicinity of the proposed project.

No manufacturing, industrial, or other uses utilizing large amounts of hazardous materials would occur within the project site. Typical use of household hazardous materials (e.g., pesticides, fertilizer, solvents, cleaning products, and paints) would not generally result in the transport, disposal, or release of hazardous materials of an amount that would create a significant hazard to the public or environment. Impacts are considered less than significant, and no mitigation is required.

Significance Determination: Less Than Significant.

Mitigation Measure: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

b) **Less than Significant Impact.** Development of the proposed project would involve the use of chemical agents, solvents, paints, and other hazardous materials that are associated with construction activities. The amount of these chemicals present during construction is limited and would be in compliance with existing government regulations. In addition, based on the findings of the Phase 1 ESA (May 2011) (Appendix E) prepared for the project site, there is no evidence of recognized environmental conditions associated with the property. In addition, no surrounding sites were identified that may pose an environmental concern during construction.

The proposed project would not transport, use, or dispose of hazardous materials. Except for petroleum products and standard cleaning products used to maintain operating equipment, no other hazardous material would be used on site. Common household and maintenance materials (e.g., pesticides, fertilizer, paint solvents, and cleaning products) would be used in varying amounts during construction and operation of the proposed project. Exposure of construction workers or site occupants to hazardous materials could occur due to improper handling or use of hazardous materials or hazardous wastes during construction or operation of the project, particularly by untrained personnel; transportation accident; environmentally unsound disposal methods; fire, explosion or other emergencies; or by other accidental releases of hazardous materials. The types and amounts of hazardous materials would vary according to the nature of the activity.

It is anticipated that during the operational phase, residences would not include uses requiring the use, storage, disposal, or transport of large volumes of hazardous materials that could cause serious environmental damage in the event of an accident. Residential uses typically do not present a hazard associated with the accidental release of hazardous substances into the environment. Hazardous substances associated with residential uses include cleaners, paint, and pesticides and would be limited in their use. In addition, these residential hazardous materials are typically found in small quantities and can be contained without impacting the environment.

No manufacturing, industrial, or other uses utilizing large amounts of hazardous materials would occur within the project site. Typical use of household hazardous materials (e.g., pesticides, fertilizer, solvents, cleaning products, and paints) would not generally result in the transport, disposal, or release of hazardous materials of an amount that would create a significant hazard to the public or environment. There currently are no programs in place that enforce the responsible transport, use, and disposal of household hazardous materials.

The Orange County Fire Authority (OCFA) is the administering agency for the chemical inventory and business emergency plan regulations for the City. OCFA's disclosure activities are coordinated with the Orange County Health Care Agency (HCA). HCA is the Certified Unified Program Agency (CUPA) for local implementation of the disclosure program and several other hazardous materials and hazardous waste programs. The OCFA's Hazardous

Materials Services Section (HMSS) is staffed with technical and administrative personnel who are assigned implementation and management of the disclosure program. All facilities are encouraged to work closely with OCFA in order to eliminate any unnecessary efforts or costs in complying with the disclosure program. The Orange County Waste and Recycling Department manages four hazardous material and hazardous waste collection centers designed to prevent damage to the environment and reduce the risk of accidental poisoning by removing household hazardous materials and medicines from the home. Because these resources are available to anyone in Orange County, it is reasonable to conclude that the residences would utilize such programs to properly handle household hazardous waste. Therefore, impacts associated with the potential release of hazardous materials that could occur with the implementation of the proposed project are considered less than significant, and no mitigation is required.

As previously stated, operation of the proposed residential uses would not include uses requiring the use, storage, disposal, or transport of large volumes of hazardous materials that could cause serious environmental damage in the event of an accident. Residential uses typically do not present a hazard associated with the accidental release of hazardous substances into the environment. Proper use of potentially hazardous materials and compliance with OCFA regulations would ensure that the proposed project would not create a significant hazard to the public or to the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials, and no mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

c) **No Impact.** There are no existing or proposed schools located within 0.25 mi of the project site. The closest school, Foothill Ranch Elementary School, is located approximately 0.28 mi north of the project site. As noted in Responses a) and b) above, the proposed project is not anticipated to release hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste in significant quantities. The project is expected to use petroleum products and standard cleaning products used to maintain operating equipment, and no other hazardous material would be used on site.

Residences would not require the use, storage, disposal, or transport of large volumes of hazardous materials that could cause serious environmental damage in the event of an accident. Although hazardous substances would be present and utilized at these residences, such substances are typically found in small quantities and can be cleaned up without affecting the environment. Therefore, the project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mi of an existing or proposed school. Therefore, no impacts are anticipated, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

d) **Less than Significant Impact.** As part of the Phase I ESA prepared for the proposed project, an environmental database report prepared by Environmental Data Resources, Inc. (EDR) was reviewed for local, State, and federal listing for the proposed site and properties in the vicinity of the proposed site. Regulatory database lists were reviewed for cases pertaining to leaking underground storage tanks and aboveground storage tanks, hazardous waste sites, and abandoned sites within the specified radii of standards established by the American Society for Testing and Materials (ASTM) guidelines.

The site is identified as a small quantity generator of hazardous waste, specifically ignitable waste, related to the past generation of small quantities of hazardous waste associated with its function as an automobile dealership and service center. No violations were reported. As concluded in the Phase I ESA, the former use of hazardous materials at the site and generation of hazardous waste on site is not expected to represent a significant environmental concern to the site and surroundings. No off-site properties were identified in the EDR database report that may pose an environmental concern to the project site. As a result, the proposed project would not create a significant hazard to the public or the environment. Therefore, no impacts are anticipated, and no mitigation is required.

Significance Determination: Less Than Significant Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less Than Significant Impact.

e) **No Impact.** The nearest airport to the proposed project site is John Wayne Airport located in the City of Santa Ana, approximately 11.5 mi to the west. Thus, the proposed project is not located within the vicinity of a public airport and is not located within an airport land use plan. Due to the project site's distance from John Wayne Airport, the proposed project would not result in a safety hazard for people residing or working in the project area. Therefore, no impacts are anticipated, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

f) **No Impact.** As previously identified, the nearest airport to the proposed project site is John Wayne Airport located in the City of Santa Ana, approximately 11.5 mi to the west. The proposed project is not located within 2 mi of a private airport, and as a result, the proposed project would not result in a safety hazard for people residing or working in the project area. Therefore, no impacts are anticipated, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

g) **Less than Significant Impact.** The City's Fire Department provides emergency services to the City through contract with the OCFA. Emergency response services include fire protection and suppression, inspection services, paramedic emergency medical aid, hazardous materials protection and response, and a variety of public services. The OCFA has a comprehensive Emergency Command Center, which includes the necessary elements to respond quickly and effectively to all types of emergencies and disasters. The OCFA has also adopted and implements the *Orange County Fire Authority Strategic Plan 2010-2015* which outlines guiding principles, strategic goals, and objectives to enhance public safety and meet the needs of its member agencies through education, prevention and emergency response. The Strategic Plan establishes the emergency organization, tasks, and general procedures, and provides for coordination of planning efforts of the various emergency staff and resources. The proposed project consists of residential uses and would not impair or physically interfere with an adopted emergency response plan.

Roads that are used as response corridors/evacuation routes usually follow the most direct path to or from various parts of the community. For the project site, the main corridors would be Bake Parkway, Portola Parkway, and SR-241. Access to and from the project site would be from Auto Center Drive on the southern and eastern sides of the proposed project site.

Construction activities that may temporarily restrict vehicular traffic would be required to implement adequate measures to facilitate the passage of people and vehicles through/around any required road closures. Site-specific activities such as temporary construction activities would be reviewed on a project-by-project basis by the City and are formulated when development plans are submitted to the City.

During the operational phase of the proposed project, on-site access would be required to comply with standards established by the City and OCFA. The size and location of fire suppression facilities (e.g., hydrants) and fire access routes would be required to conform to City Fire Department standards and/or OCFA standards. As discussed in Chapter 2, the proposed project includes four new fire hydrants along the private road, as well as sufficient space per OCFA's requirements for the turning radius of fire trucks. As required of all development in the City, the operation of the residential portion of the proposed project would conform to applicable Uniform Fire Code standards. Therefore, implementation of the

proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. No mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

h) **No Impact.** The project site is located within a commercial area within the City and is bounded on all side by urban uses. According to the City General Plan Safety and Noise Element, the project site is not located in an Area of Fire Hazard. In addition, according to the OCFA Fire Hazard Map as well the Statewide CalFire Map (2007), the proposed project is not located in an area designated as a Very High Fire Hazard Severity Area/Special Fire Protection Area or within an area designated by the State as a Fire Hazard Severity Zone. As a result, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Therefore, no impacts are anticipated, and no mitigation measures are required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

4.11 HYDROLOGY AND WATER QUALITY *Would the project:*		**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
(a)	Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
(b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
(c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in a substantial erosion or siltation on- or off-site.	☐	☒	☐	☐
(d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
(e)	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
(f)	Otherwise substantially degrade water quality?	☐	☒	☐	☐
(g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
(h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
(i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
(j)	Expose people or structures to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion:

a) **Less than Significant with Mitigation Incorporated.** Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via storm runoff into receiving waters.

During construction, the total disturbed soil area would be 8.97 ac. Because the proposed project disturbs greater than 1 ac of soil, the project is subject to the requirements of the State

Water Resources Control Board's (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, NPDES No. CAS000002) (Construction General Permit [CGP]).

As specified in Mitigation Measure WQ-1, coverage under the CGP would have to be obtained for the proposed project. Under the CGP, the project would be required to prepare a SWPPP and implement construction BMPs detailed in the SWPPP during construction activities. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

Expected pollutants associated with the proposed project (multi-family residential) include suspended solids/sediments, nutrients, pathogens (bacteria/viruses), pesticides, oil and grease, trash and debris, heavy metals, and organic compounds. Primary pollutants of concern based on expected pollutants and downstream receiving water impairments include sediments, nutrients, pesticides, metals, and pathogens. The proposed project would increase the amount of impervious surface area on site by approximately 2.26 ac (from 4.16 ac to approximately 6.42 ac), an increase of 31 percent (from 55 to 86 percent).

A *Preliminary Water Quality Management Plan* (PWQMP) (Appendix F) has been prepared for the proposed project that details Source Control, Site Design, and Low Impact Development (LID) BMPs that would be implemented to reduce impacts to water quality during operation of the proposed project. Proposed Site Design BMPs include minimizing impervious area and disconnecting impervious areas by providing landscaping throughout the site and around the perimeter of the building, preserving existing drainage patterns and time of concentration, revegetating disturbed areas, and xeroscape landscaping through use of native and/or drought tolerant landscaping. Proposed LID BMPs include hydraulic source controls (impervious area dispersion) throughout the site with disconnected downspouts and sidewalks draining to adjacent landscaping. Proprietary biotreatment units (Filterra® or equivalent) would also be installed throughout the project site to target removal of pollutants of concern in runoff from the project site. In addition, two rain gardens (bioretention cells) would be located in the northeast portion of the project site to capture and treat a portion of runoff prior to discharging into the proprietary biotreatment units. Proposed nonstructural Source Control BMPs include education for property owners, tenants, and occupants, activity restrictions, common area landscape management, and BMP maintenance. Proposed structural Source Control BMPs include storm drain stenciling and signage; efficient irrigation systems and landscape design, water conservation, smart controllers; and protection of slopes and channels. In addition, pet waste stations with waste removal bags and instructions will be provided throughout the common areas to encourage pet owners to remove pet waste from common areas. Figure 2.6 illustrates the proposed BMPs. As detailed in Mitigation Measure WQ-2, a Final Water Quality Management Plan (WQMP) would be prepared for the proposed project. The BMPs specified in the Final WQMP would be implemented to target pollutants of concern from runoff from the project site.

The project applicant (through the establishment of a Home Owners Association [HOA]) would be responsible for inspection and maintenance of all BMPs. As specified in Mitigation Measure WQ-3, the HOA would verify BMP implementation and ongoing maintenance through inspection, self-certification, survey, or other effective measures. As specified in Mitigation Measure WQ-4, should the maintenance responsibility be transferred (for example to a different HOA), a formal notice of transfer would be provided to the City.

With incorporation of construction and post-construction BMPs that would target pollutants of concern, as specified in Mitigation Measures WQ-1, WQ-2, WQ-3, and WQ-4, the proposed project would not violate any water quality standards or waste discharge requirements. Therefore, with implementation of Mitigation Measures WQ-1, WQ-2, WQ-3, and WQ-4, impacts related to waste discharge requirements and water quality standards would be less than significant.

Significance Determination: Potentially Significant.

Mitigation Measures:

WQ-1 Prior to issuance of a grading permit, the project applicant shall obtain coverage under the State Water Resources Control Board National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, NPDES No. CAS000002) (Construction General Permit [CGP]). The project applicant shall provide the Waste Discharge Identification Number (WDID) to the City of Lake Forest (City) to demonstrate proof of coverage under the CGP. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared and implemented for the project in compliance with the requirements of the CGP. The SWPPP shall identify construction Best Management Practices (BMPs) to be implemented to ensure that the potential for soil erosion and sedimentation is minimized and to control the discharge of pollutants in storm water runoff as a result of construction activities.

WQ-2 Prior to the issuance of any grading or building permits, the project applicant shall prepare a Final Water Quality Management Plan (WQMP). The Final WQMP shall be prepared consistent with the Orange County Municipal Separate Storm Sewer System (MS4) Permit, Drainage Area Management Plan, Model WQMP, and Technical Guidance Document. The Final WQMP shall specify BMPs to be incorporated into the design of the project. The project applicant shall provide the Final WQMP to the City for review and approval.

WQ-3 During operation, the Home Owners Association (HOA) shall verify BMP implementation and maintenance through inspection, self-certification, survey, or other equally effective measure. The certification shall verify, at a minimum, the inspection and maintenance of all structural BMPs, including inspection and required maintenance in the late summer/early fall (prior to the start of the rainy season). The HOA shall retain, and make available to the City upon request, operations, inspections, and maintenance records of the BMPs for at least 5 years after the

recorded inspection date for the life of the project. In addition, the HOA shall ensure that long-term funding for BMP maintenance is available.

WQ-4 Upon transfer of the maintenance responsibility for the BMP, the HOA's Board of Directors shall submit a formal notice of transfer to the City at the time responsibility for maintenance of the property is transferred. The transfer of responsibility shall be incorporated into the Final WQMP as an amendment.

Significance Determination After Mitigation: Less than Significant.

b) **Less than Significant Impact.** The project site is not in a recharge area owned by the Orange County Water District. The proposed project would increase impervious surface areas on site. However, according to the WQMP, on-site soils have very low infiltration rates. Therefore, infiltration is very low in existing conditions. In addition, operation of the proposed project would not require groundwater extraction. Groundwater is not anticipated to be encountered during construction; therefore, groundwater dewatering during construction would not be required. Site development would not substantially deplete groundwater supplies or substantially interfere with groundwater recharge, and no mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

c) **Less than Significant with Mitigation Incorporated.** During construction activities, soil would be exposed and disturbed, drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. As discussed above in Response 4.9.a and specified in Mitigation Measure WQ-1, the CGP requires preparation of a SWPPP to identify Construction BMPs to be implemented as part of the proposed project to reduce impacts to water quality during construction, including those impacts associated with soil erosion and siltation. With implementation of the Construction BMPs as specified in Mitigation Measure WQ-1, impacts related to on- or off-site erosion or siltation would be less than significant.

The proposed project would result in a slight alteration of the existing on-site drainage patterns. According to the *Preliminary Hydrology and Hydraulic Report* (Appendix D) prepared for the project, in the current condition, 80 percent of runoff from the project site drains in a southwesterly direction to an existing 30-inch reinforced concrete pile storm drain that runs west from an existing catch basin in the northern portion of Auto Center Drive to an existing catch basin on Bake Parkway. Runoff from the remainder of the project site drains as surface flow in a southeasterly direction to Auto Center Drive and then to an existing catch basin at the corner of Auto Center Drive and Towne Centre Drive. The proposed project

would include one main storm drain line (30-inch) that would collect runoff from a series of catch basins on the proposed main driveway and then convey the runoff west to the existing storm drain facility in Bake Parkway. In the proposed condition, 6.42 ac of the site would be impervious surface areas and not prone to erosion or siltation. The remaining 1.14 ac of the site would be landscaping and the bio-retention BMPs, which would collect and treat runoff and minimize erosion and siltation.

As a result of the increase in impervious surface area, the proposed project is anticipated to increase runoff volumes from 0.9 af to 1.15 af for a 2-year, 24-hour runoff volume (an increase of 0.25 af or 28%) and from 2.63 af to 2.80 af for a 25-year, 24-hour runoff volume (an increase of 0.17 af or 6%). The proposed project would also increase the 2-year, 24-hour time of concentration from 8.50 minutes to 11.03 minutes (an increase of 2.13 minutes or 25%) and the 25-year, 24-hour time of concentration from 7.77 minutes to 10.62 minutes (an increase of 2.85 minutes or 37%). However, with implementation of BMPs, the proposed project would reduce the peak flow rate from 13.75 cfs to 11.91 cfs for a 2-year storm event (a decrease of 1.84 cfs or 13%) and from 31.1 cfs to 26.7 cfs for a 25-year storm event (a decrease of 4.4 cfs or 14%).

Since the peak flow rate of runoff from the site would be lower than existing conditions, the proposed project would not contribute to downstream erosion or siltation. Finally, the proposed project would not alter the course of a stream or river. Therefore, operation of the proposed project would not substantially alter the existing drainage pattern of the site in a manner that would result in substantial erosion or siltation on or off site.

Significance Determination: Potentially Significant.

Mitigation Measures: Refer to Mitigation Measure WQ-1.

Significance Determination After Mitigation: Less than Significant.

d) **Less than Significant Impact.** As discussed above, the proposed project would alter the existing on-site drainage patterns and permanently increase the impervious surface area compared to existing conditions. However, the peak flow rate would decrease by 1.84 cfs or 13 percent for a 2-year storm event and by 4.4 cfs or 14 percent for a 25-year storm event. In addition, the BMPs, catch basins, and storm drain line would be sized to accommodate storm water runoff from the project site. Therefore, the proposed project would not result in on-site or off-site flooding. Therefore, alterations to the existing drainage patterns would not substantially increase the rate or amount of surface runoff or result in flooding on or off site.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

e) **Less than Significant Impact with Mitigation Incorporated.** As discussed above in Responses 4.9.c and 4.9.d, the proposed project would increase the impervious surface area compared to existing conditions, which would increase the volume and time of concentration of storm water runoff. However, the peak flow rate would decrease by 1.84 cfs or 13 percent for a 2-year storm event and by 4.4 cfs or 14 percent for a 25-year storm event. Therefore, the project would not contribute runoff water that would exceed the capacity of an existing or planned storm water drainage system.

As discussed in Response 4.9.a, construction of the proposed project has the potential to introduce pollutants to the storm water drainage system from erosion, siltation, and accidental spills. However, the CGP requires preparation of a SWPPP to identify construction BMPs to be implemented during project construction to reduce impacts to water quality, including those impacts associated with soil erosion, siltation, and spills. In addition, the proposed project includes Source Control, Site Design, and LID BMPs, including biotreatment BMPs to treat storm water runoff from the site during operation. Therefore, with implementation of Mitigation Measures WQ-1, WQ-2, WQ-3, and WQ-4 which require compliance with the CGP, implementation of construction and operational BMPs, and on-going maintenance of operational BMPs, the proposed project would not provide substantial additional sources of polluted runoff.

Significance Determination: Potentially Significant.

Mitigation Measures: Refer to Mitigation Measures WQ-1, WQ-2, WQ-3, and WQ-4.

Significance Determination After Mitigation: Less than Significant.

f) **Less than Significant with Mitigation Incorporated.** Refer to Response 4.9.a above.

Significance Determination: Potentially Significant.

Mitigation Measures: Refer to Mitigation Measures WQ-1, WQ-2, and WQ-3.

Significance Determination After Mitigation: Less than Significant.

g) **No Impact.** According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the project site is not located within a 100-year floodplain. The project site is mapped as Zone X, which is defined as the area determined to be outside the 0.2 percent annual change floodplain (500-year floodplain) (Map No. 06059C0316J; December 3, 2009). Therefore, the project would not place housing within a 100-year flood hazard area, and no impacts would occur. No mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

h) **No Impact.** As discussed in Response 4.9.g above, the project site is not located within a 100-year flood hazard area. Therefore, the proposed project would not place structures within a 100-year flood hazard area that would impede or redirect flood flows, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

i) **No Impact.** The closest water retention facilities include Upper Oso Reservoir, Lake Mission Viejo, and Irvine Lake, which are all located more than 2 mi from the project site. In addition, the project site is not located within the inundation areas of these reservoirs. Therefore, the proposed project would not expose people or structures to loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. No mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

j) **No Impact.** Seiching is a phenomenon that occurs when seismic ground shaking induces standing waves (seiches) inside water retention facilities such as reservoirs and water tanks. Such waves can cause retention structures to fail and flood downstream properties. There are no water retention facilities in close proximity to the project site. The closest water retention facilities include Upper Oso Reservoir, Lake Mission Viejo, and Irvine Lake, which are all located more than 2 mi from the project site. The risk associated with possible seiche waves is, therefore, not considered a potential constraint or a potentially significant impact of the project, and no mitigation is necessary.

Tsunamis are generated wave trains generally caused by tectonic displacement of the seafloor associated with shallow earthquakes, seafloor landslides, rockfalls, and exploding volcanic islands. The proposed project is located approximately 12 mi from the ocean shoreline and is not in a tsunami inundation area (Tsunami Inundation Map for Emergency Planning, Orange County, March 15, 2009; California Emergency Management Agency, California Geological Survey, and University of Southern California). The risk associated with tsunamis is, therefore, not considered a potential hazard or a potentially significant impact, and no mitigation is required.

Mudslides and slumps are described as a shallower type of slope failure, usually affecting the upper soil mantle or weathered bedrock underlying natural slopes and triggered by surface or shallow subsurface saturation. The project site is relatively flat, and no existing landslides are present on the property. The risk associated with possible mudflows and mudslides is, therefore, not considered a potential constraint or a potentially significant impact of the project, and no mitigation is necessary.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

4.12 LAND USE/PLANNING *Would the project:*		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a)	Physically divide an established community?	☐	☒	☐	☐
(b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
(c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion:

a) **Less than Significant with Mitigation Incorporated.** Implementation of the proposed project would not change the existing parcel configuration within the project site or within the local areas nor change the existing street layout. The project site is bound on three sides by roadways (Bake Parkway, Portola Parkway, and Auto Center Drive) and the proposed development will not divide or separate any existing land uses or neighborhoods. The proposed project would improve connections between residential and commercial land uses by constructing a residential use in closer proximity to existing commercial uses along Bake Parkway and by providing dedicated pathways for pedestrian access. The proposed project would also provide sufficient parking on site for residents and guests consistent with the City's parking requirements. As demonstrated in Sections 4.18, 4.14, 4.5, and 4.1, the proposed land uses would not be exposed to substantial or adverse traffic, noise, air quality or visual impacts or expose other uses to these types of impacts. However, overall the proposed project would introduce a residential use that is more noise and time sensitive than the commercial activities that occur within adjacent areas. Permitted activities within these commercially designated parcels would be operational from the morning into the evening hours and during both weekdays and weekends, consistent with the City's Municipal Code. Future residents could be affected by the operation of these permitted commercial activities. Mitigation Measure L-1 would require the applicant to develop an informational pamphlet that would educate homeowners about the adjacent commercial uses and anticipated activities with these uses and the legal rights of these commercial uses to operate to reduce and/or avoid future miscommunication or complaints from residents. With implementation of Mitigation Measure L-1, the proposed project impact on the established community would be reduced to below a level of significance.

Significance Determination: Potentially Significant.

Mitigation Measures:

L-1: Prior to issuance of the first occupancy permit, the applicant shall provide to the Development Services Department, for review and approval, an informational pamphlet that will be used to educate homeowners about the adjacent commercial uses and anticipated activities of these uses and their legal rights to operate within the limits of the Municipal Code.

Significance Determination After Mitigation: Less than Significant.

b) **Less than Significant Impact.** As shown in Figure 4.10.1, the City's General Plan currently designates the project site, as well as the areas around the project site, as Commercial. This designation provides for a variety of retail, professional office, and service-oriented business activities, many of which are roadway-oriented and serve a communitywide area and population. As shown in Figure 4.10.2, the project site and areas around the project site are also zoned for commercial uses as part of the Foothill Ranch Planned Community (FRPC) (PC-8).

The main guiding documents regulating land use around the project site include the City of Lake Forest General Plan and the City of Lake Forest Zoning Ordinance (including the FRPC). The proposed project's consistency with these plans is discussed below.

General Plan. The City of Lake Forest General Plan is the City's most fundamental planning document. The General Plan is a comprehensive plan intended to guide to the physical development of the City. It serves as a blueprint for future growth and development in the City. As a blueprint for the future, the plan contains policies and programs designed to provide decision-makers with a solid basis for decisions related to land use and development.

The proposed project includes a General Plan Amendment request to modify the land use for the project site to Medium Density Residential from Commercial. Medium Density Residential would provide for the development of a wide range of living accommodations, including single-family dwelling units and multiple-family dwellings units, such as townhomes, condominiums, and apartments. This designation allows for a maximum of 25 single-family dwelling units per net acre of land. The proposed project includes 151 units at a density of approximately 20 dwelling units per net acre.

As discussed throughout this IS/MND, the proposed project would result in environmental impacts, some of which are potentially significant and can be mitigated to a level below significance (refer to Table 5.A). With approval by the City of Lake Forest of the proposed General Plan Amendment, the proposed project would be considered consistent with General Plan goals and policies.

Zoning Ordinance. The City of Lake Forest Zoning Ordinance is the primary implementation tool for the Land Use Element and the goals and policies contained therein. For this reason, the zoning map must be consistent with the General Plan Land Use Policy Map. The Zoning Ordinance, which includes the Zoning Map, contains detailed information about permitted land uses, building intensities, and required development standards. The Zoning District Regulations are incorporated into the FRPC (April 1988), a comprehensive plan for the Foothill Ranch Planned Community.

LSA

LEGEND

Project Location

General Plan Land Use

FIGURE 4.10.1

N

0 150 300

FEET

SOURCE: Bing Maps (c.2008); SCAG (2008)

I:\CLF1201\GIS\GPLU.mxd (7/12/2012)

Towne Centre Residential

General Plan Land Use Designations

This page intentionally left blank

LSA

LEGEND

Project Location

Zoning

C- Commercial
I- Industrial

N

0 150 300
FEET

FIGURE 4.10.2

Towne Centre Residential
Zoning Designations

SOURCE: Bing Maps (c.2008); SCAG (2008)

I:\CLF1201\GIS\Zoning.mxd (7/12/2012)

This page intentionally left blank

The Zoning Ordinance designation for the proposed project site is Commercial within the Foothill Ranch Planned Community (PC-8). The proposed project includes an amendment request for the FRPC Development Plan and Supplemental Text to change the project site's zoning from "Foothill Ranch: Commercial" to "Foothill Ranch: Multi-family Residential" and to increase the number of residential units permitted within the FRPC from "Foothill Ranch: Commercial" to "Foothill Ranch: Multifamily Residential."

Table 4.10.A provides a list of applicable development standards and an evaluation of the project's consistency with each standard for Multiple Family. Zoning Ordinance provisions that are not relevant to the proposed project are not included in Table 4.10.A.

As discussed in Table 4.10.A, the proposed project does not conflict with any provisions in the City's Zoning Ordinance assuming the project's amendment from "Foothill Ranch: Commercial" to "Foothill Ranch: Multifamily Residential" and the FRPC is amended to allow to an increase in allowable units. Therefore, impacts to applicable land use plans, policy, and regulations would be less than significant.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

c) **No Impact.** The northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land. The project site is surrounded by roadways and urban development. While the project site is located within the planning area of the NCCP/HCP, the project site is not located within the reserve system. The proposed project site is in an area identified in the NCCP/HCP as urbanized and is located in an area designated for development. Furthermore, since the project site is already disturbed, no payment of NCCP fees or implementation of construction minimization measures is required. Therefore, the project would not conflict with the NCCP/HCP, and no impacts would result.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

Table 4.10.A: Zoning Ordinance Consistency Analysis

City of Lake Forest, Foothill Ranch Planned Community, Multiple-Family Dwellings Site Development Standards	Project Consistency Analysis
Building Site Area: 5,000 square feet minimum	**Consistent.** The proposed project would be approximately 204,106 square feet (sf).
Building Site Area per Unit: 1,000 square feet minimum	**Consistent.** The proposed project includes a 5.97 building area minus the motor court area. This averages to approximately 1,722 square feet per unit.
Building Height: No restrictions.	**Consistent.** The proposed project would be a maximum of 26 feet (ft) in height.
Building Site Coverage: 60 percent maximum, not to include carports or garages.	**Consistent.** The proposed building site coverage would be approximately 35.9 percent; refer to Table 2.B.
Setbacks: ▪ 10 feet from property line abutting a street. ▪ 25 feet minimum from all property lines abutting single family residential areas ▪ No setback required from interior property lines.	**Consistent.** The proposed project would be consistent with all setback requirements.
Patios: No attached or detached covered patios shall be located closer than two (2) feet to a property line except the street-side property line or a corner lot, in which case a minimum distance of eight (8) feet shall be maintained.	**Consistent.** The buildings on the corner of Bake and Portola Parkways (Buildings 3 and 4) have ground-floor units with patios that are set back from both roadways by 200 ft.
Garage and Carport Placement: The point of vehicular entry to garages and carports shall be set back a distance of ten (10) feet or less, or seventeen (17) feet or more from the back of the travel way.	**Consistent.** The on-site parking (76 spaces) is located more than 40 ft from Auto Center Drive at the two access points and the garages are located approximately 20 ft or more from the main private drive. One-bedroom units would have one attached garage space for a total of 21 proposed parking spaces. Each two- and three-bedroom unit would have two attached garage spaces, directly accessible from motorcourts behind the units, which would result in a total of 260 parking spaces. Sixty-five of the two-car garages (i.e. 130 parking spaces) will be provided as tandem garages.
Off-street Parking: Off-street parking shall be provided as required by the provisions in Section XIX.	**Consistent.** The proposed project would provide a total of 357 on-site parking spaces and this total would exceed the minimum parking requirement of 355 on-site parking spaces.
Open Space: A minimum of five (5) percent of the net area of the project is to be reserved as convenient, accessible, and usable open area.	**Consistent.** Based on the proposed project net area of 7.49 acres, the required open space for the proposed project would be 0.3745 acre. As discussed in Section 2.0, Project Description, the proposed project includes construction of an 8,500 sf recreation and gathering area (approximately 0.34 acre), as well as areas

Table 4.10.A: Zoning Ordinance Consistency Analysis

City of Lake Forest, Foothill Ranch Planned Community, Multiple-Family Dwellings Site Development Standards	Project Consistency Analysis
	characterized as park (0.32 acre), for a total of 0.66 acre. Therefore, the proposed project would be consistent with the City's requirement.
Total Number of Units: As shown on the Statistical Summary of the Foothill Ranch P.C. Development Plan and Statistical Summary or any amendment thereof.	**Inconsistent.** The proposed project would include 151 units and is seeking a FRPC amendment for additional units to be permitted under the Foothill Ranch Plan.
Signs: Signal shall be permitted in accordance with the provisions in Section XX.	**Consistent.** The proposed project would comply with the requirements of a PSP permit for signage.
Trash and Storage Areas: All storage, including cartons, containers or trash, shall be shielded from view within a building or area enclosed by a wall not less than six (6) feet in height.	**Consistent.** All trash storage areas are to be located within the garages and only visible on pick up days.
Screening: (1) Abutting residential areas: A screen, as defined in subsection (4) below, shall be installed along all buildings its boundaries where the premises abut areas zoned for residential. Except as otherwise provided below, the screening shall have a total height of not less than six (6) feet and not more than seven (7) feet. (2) Parking areas abutting highways: A screen shall be installed along all parking areas abutting highways. Except as otherwise provided below, the screening shall have a total height of not less than thirty-six (36) inches and not more than forty-two (42) inches. (3) Notwithstanding the requirements listed above, where the finished elevation of the property at the boundary line, or within five (5) feet inside the boundary line, is lower than an abutting property elevation, such change in elevation may be in lieu of, or in combination with additional screening to satisfy the screening requirements of this section. (4) A screen as referred to in (1)., (2)., and (3). above shall consist of one or any combination of the following: (a) Walls including retaining walls: A wall shall consist of concrete, stone, brick, tile, or similar type of solid masonry material a minimum of six (6) inches thick. (b) Berms: a berm shall be constructed of earthen materials and it shall be landscaped. (c) Fences, solid: A solid fence shall be constructed of wood or other materials a	**Consistent.** The project includes landscaping to shield the project site from Bake Parkway, Portola Parkway, Towne Centre Drive, and Auto Center Drive. The screening would comply with the applicable height requirements.

Table 4.10.A: Zoning Ordinance Consistency Analysis

City of Lake Forest, Foothill Ranch Planned Community, Multiple-Family Dwellings Site Development Standards	Project Consistency Analysis
minimum nominal thickness of two (2) inches and it shall form an opaque screen. (d) Landscaping: Vegetation, consisting of evergreen or deciduous trees or shrubs. (5) **Mechanical Equipment:** Mechanical equipment placed on any roof such as, but not limited to, air conditioning, heating, ventilation ducts and exhaust, shall be screened from view from any abutting street or highway and any abutting area zoned for residential or open space uses within the Foothill Ranch Planned Community.	
Landscaping: Landscaping, consisting of evergreen or deciduous trees, shrubs, ground cover, or hardscape shall be installed and maintained subject to the following standards: ▪ Boundary landscaping abutting arterial highways is required to an average depth of fifteen (15) feet with a minimum depth of five (5) feet. ▪ Boundary landscaping abutting public streets, other than arterial highways, is required to an average depth of ten (10) feet with a minimum depth of five (5) feet. ▪ Separation: Any landscaped area shall be separated from an adjacent vehicular area by a wall or curb at least six (6) inches higher than the adjacent vehicular area or shall in some manner be protected from vehicular drainage. ▪ Watering: Permanent automatic watering facilities shall be provided for all landscaped areas. ▪ Maintenance: All landscaping shall be maintained in a neat, clean and healthy condition. This shall include proper pruning, mowing of lawns, weeding, removal of litter, fertilizing, and replacement of plants when necessary and the regular watering of all plantings.	**Consistent.** Boundary landscaping would comply with the applicable depth requirements for arterial highways and public streets. The landscaping areas adjacent to vehicular areas would be separated by a wall of at least six inches. The irrigation system would comply with the City of Lake Forest's (City's) Water-Efficient Landscape Ordinance. No reclaimed water would be utilized on site. Also, all landscaping would be in compliance with City Water Efficient Landscape Regulation, Ordinance No. 207. The irrigation system for the landscaping would consist of low-volume spray heads or bubblers connected to an automatic irrigation control system. All landscaping would be maintained.

4.13 MINERAL RESOURCES *Would the project:*	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
(b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local General Plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion:

a) **No Impact.** As shown on the City's Mineral Resource Area Map (General Plan, Recreation and Resources Element), one area in the City is classified as an important Mineral Resource Zone (MRZ-2) for Portland cement concrete (PCC) grade aggregate by the State Department of Conservation. The 62 ac area is located at the southwest corner of Portola Parkway, approximately 0.5 mi southeast of the project site. The MRZ-2 classification indicates that the area has significant mineral deposits or a high likelihood of their presence exists. PCC grade aggregate is used for a variety of construction uses.

As previously stated, the northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land. There are no oil or other mineral extraction activities occurring on the site. In addition, the project site is not located in or near an important mineral resource zone. Therefore, the proposed project would not result in the loss of availability of known mineral resources that would be of value to the residents of the State. No mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

b) **No Impact.** As stated above, no known commercially valuable mineral resources exist on or near the project site. In addition, the project site is not identified on a local General Plan, Specific Plan, or other land use plan as the location of a locally important mineral resource. The proposed project would not result in the loss of a locally important mineral resource. No significant impacts related to mineral resources would result from project implementation, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

4.14 NOISE *Would the project result in:*		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a)	Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
(b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
(c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
(d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
(e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
(f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion:

Impact Analysis:

a) **Less than Significant with Mitigation Incorporated.** Noise impacts can be described in three categories. The first is audible impacts that refer to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 decibels (dB) or greater because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise levels of less than 1.0 dB, which are inaudible to the human ear. Only audible changes (i.e., 3.0 dB or greater) in existing ambient or background noise levels are considered potentially significant.

A project would normally have a significant effect on the environment related to noise if it would substantially increase the ambient noise levels for adjoining areas or conflict with the adopted environmental plans and goals of the community in which it is located. The City has not adopted any threshold for increases in ambient noise levels. However, in an outdoor environment, noise level changes that are less than the audible range of the human ear are not considered a substantial change. The City General Plan (Safety and Noise Element) and the City's Municipal Code (Chapter 11.16, Noise Control) establish noise standards for the City.

General Plan Safety and Noise Element. The City General Plan Safety and Noise Element, requires consideration of the sources and recipients of noise early in the land use planning process, for an effective method of minimizing the impacts of noise on the community's population. Areas already impacted by noise can also have noise reduced

through rehabilitative improvements. The standards shown in Table 4.12.A represent the maximum allowable noise level for the identified uses and are used by the City to determine noise impacts associated with implementation of projects.

Table 4.12.A: City of Lake Forest Interior and Exterior Noise Standards

Land Use	Noise Standards	
	Interior	Exterior
Residential – Single-family, multifamily, duplexes, mobile homes	CNEL 45 dBA	CNEL 65 dBA
Residential – Transient lodging hotels, motels, nursing homes, hospitals	CNEL 45 dBA	CNEL 65 dBA
Private offices, church sanctuaries, libraries, board rooms, conference rooms, theaters, auditoriums, concert halls, meeting halls, etc.	$L_{eq}(12)$ 45 dBA	–
Schools	$L_{eq}(12)$ 45 dBA	CNEL 65 dBA
General offices, reception, clerical, etc.	$L_{eq}(12)$ 50 dBA	–
Bank lobbies, retail stores, restaurants, typing pools, etc.	$L_{eq}(12)$ 55 dBA	–
Manufacturing, kitchens, warehousing, etc.	$L_{eq}(12)$ 65 dBA	–
Parks, playgrounds, etc.	–	CNEL 65 dBA
Golf courses, outdoor spectator sports facilities, amusement parks, etc.	–	CNEL 70 dBA

Source: City of Lake Forest General Plan, 2011.

CNEL = community noise equivalent level

dBA = A-weighted decibel

L_{eq} = equivalent continuous noise level

Municipal Code. The Noise Control Chapter of the City Municipal Code (Noise Ordinance) is designed to protect people from non-transportation (stationary) noise sources such as music, construction activity, machinery and pumps, and air conditioners. The Noise Ordinance sets limits on the level and the duration of time a stationary noise source may impact a residential use. The louder the level becomes, the shorter the time becomes that it is allowed to occur. Table 4.12.B lists the A-weighted decibel (dBA) noise level and the maximum cumulative period of time that the noise level may occur during a 1-hour period. The ordinance applies different criteria during different time periods. The noise criteria are much more stringent in late night and early morning hours and reflect a heightened sensitivity to noise during these time periods.

The City's Noise Ordinance also governs the time of day that construction work can be conducted. The Noise Ordinance prohibits construction, repair, remodeling, and grading between the hours of 8:00 p.m. and 7:00 a.m. on weekdays and Saturdays, or at any time on Sunday or a federal holiday.

Table 4.12.B: City of Lake Forest Noise Ordinance Standards

Noise Level, dBA		Maximum Cumulative Duration
Daytime Ordinance (7:00 a.m.–10:00 p.m.)		
Exterior Noise	**Interior Noise**	
75	65	Not to be exceeded at any time
70	60	1 minute
65	55	5 minutes
60	—	15 minutes
55	—	30 minutes
Nighttime Ordinance (10:00 p.m.–7:00 a.m.)		
70	55	Not to be exceeded at any time
65	50	1 minute
60	45	5 minutes
55	—	15 minutes
50	—	30 minutes

Source: City of Lake Forest Municipal Code, Chapter 11.16.020.
dBA = A-weighted decibel

Baseline Noise Levels. Noise measurements were made in order to document existing baseline noise levels in the area. These help to serve as a basis to determine noise exposure from ambient noise-generating activities upon the project site. Long-term (24-hour) noise measurements were conducted from Wednesday, March 14, to Thursday, March 15, 2012, at one on-site location and from Tuesday, March 20, through Wednesday, March 21, 2012, at two additional locations (i.e., the Village commercial strip mall and the Mercedes dealership). These noise monitoring locations are described below to document ambient noise levels at these on-site locations near off-site noise-generating sources.

Long-term noise measurement locations were selected to document the daily trend in noise levels generated by area roadways, the strip mall in the southwest corner of the site (along Bake Parkway) and noise adjacent to the existing Mercedes dealership (along Auto Center Drive). The monitoring results are shown in Table 4.12.C.

These meters yielded community noise equivalent level (CNEL) noise levels of 59 dBA along The Village commercial strip mall perimeter and a CNEL of almost 58 dBA along the site perimeter near the Mercedes dealership. These noise levels are well within the City's residential noise standards of 65 dBA CNEL. At the corner of Bake Parkway and Portola Parkway, noise readings were approximately 69 dBA CNEL for a 90 ft setback from the Portola Parkway centerline and 120 ft from the Bake Parkway centerline.

Table 4.12.C: Noise Measurement Results (dBA)

Time Interval	L_{eq} Meter 1	L_{eq} Meter 2	L_{eq} Meter 3
15:00–16:00	56.2	65.5	53.7
16:00–17:00	55.4	66.8	54.1
17:00–18:00	54.4	67.8	54.2
18:00–19:00	53.8	66.7	53.5
19:00–20:00	53.2	65.5	53.0
20:00–21:00	54.5	65.0	52.9
21:00–22:00	51.4	63.2	49.9
22:00–23:00	48.8	63.5	47.7
23:00–24:00	44.8	61.9	46.9
0:00–1:00	44.3	56.8	43.1
1:00–2:00	42.9	58.3	44.7
2:00–3:00	41.9	52.8	42.3
3:00–4:00	42.4	58.2	44.1
4:00–5:00	46.8	62.7	50.6
5:00–6:00	53.9	63.3	53.6
6:00–7:00	54.0	64.9	55.7
7:00–8:00	63.2	67.0	55.7
8:00–9:00	62.7	66.1	55.0
9:00–10:00	61.0	64.4	53.8
10:00–11:00	56.6	64.3	54.2
11:00–12:00	56.5	66.8	56.5
12:00–13:00	59.8	66.9	56.0
13:00–14:00	57.8	66.8	54.4
14:00–15:00	54.9	65.7	54.6
24–Hour CNEL	58.9	69.4	57.8

Source: Hans Giroux & Associates, July 24, 2012.

dBA = A-weighted decibel CNEL = Community Noise Equivalent Level

L_{eq} = Equivalent continuous noise level

Project perimeter noise levels near 70 dBA CNEL would require 25 dBA of structural attenuation to reduce the exterior facade level to an acceptable indoor level of 45 dBA CNEL. In modern residential construction, observed attenuation is 30 dBA with closed dual-paned windows and supplemental ventilation. With anticipated traffic growth, future noise levels would only increase by 1–2 dBA at most. Standard construction practice would, therefore, allow interior standards to be met with a reasonable margin of safety.

Short-Term Construction Noise Impacts. Short-term noise impacts would be associated with excavation, grading, and the erection of buildings on site during construction of the proposed project. Construction-related short-term noise levels would be higher than existing ambient noise levels in the project area at the present time, but would no longer occur once construction of the project is completed.

Two types of short-term noise impacts could occur during construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally increase noise levels on access roads leading to the site. A relatively high single-event noise exposure potential would exist at a maximum level of 87 dBA maximum instantaneous noise level (L_{max}) with trucks passing at 50 ft. However, the projected construction traffic would be minimal when compared to the existing traffic volumes on Portola Parkway, Bake Parkway, and SR-241, and its associated noise level change would not be perceptible. Therefore, short-term construction-related worker commutes and equipment transport noise impacts would be less than significant.

The second type of short-term noise impact is related to noise generated during excavation, grading, and construction on site. Construction is performed in discrete steps, each of which has its own mix of equipment, and consequently its own noise characteristics. These various sequential phases would change the character of the noise generated on site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4.12.D lists maximum noise levels recommended for noise impact assessments for typical construction equipment based on a distance of 50 ft between the equipment and a noise receptor. Typical maximum noise levels range up to 89 dBA at 50 ft during the noisiest construction phases. The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1–2 minutes of full power operation followed by 3–4 minutes at lower power settings.

Construction of the proposed project is expected to require the use of earthmovers, bulldozers, water trucks, and pickup trucks. This equipment would be used on site. Based on Table 4.12.D, the maximum noise level generated by each scraper on site is assumed to be 87 dBA L_{max} at 50 ft from the scraper. Each bulldozer would generate 85 dBA L_{max} at 50 ft. The maximum noise level generated by water and pickup trucks is approximately 86 dBA L_{max} at 50 ft from these vehicles. Each doubling of a sound source with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, the worst-case combined noise level during this phase of construction would be 91 dBA L_{max} at a distance of 50 ft from the active construction area. Construction activities for the proposed project would be located within 100 ft of the existing commercial uses to the south and east. Maximum construction noise levels at the adjacent commercial uses would range up to 85 dBA L_{max}. Construction activity

noise generated between 7:00 a.m. and 8:00 p.m. Monday through Saturday is exempt from the Noise Control Ordinance standards. Therefore, if construction is limited to the hours specified in the City's Noise Control Ordinance and Mitigation Measure N-1, noise generated during construction is considered less than significant impact for existing commercial uses to the south and east of the project site.

Table 4.12.D: Typical Maximum Construction Equipment Noise Levels (L_{max})

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 ft)	Suggested Maximum Sound Levels for Analysis (dBA at 50 ft)
Pile Drivers, 12,000–18,000 ft-lb/blow	81–96	93
Rock Drills	83–99	96
Jack Hammers	75–85	82
Pneumatic Tools	78–88	85
Pumps	74–84	80
Dozers	77–90	85
Scrapers	83–91	87
Haul Trucks	83–94	88
Cranes	79–86	82
Portable Generators	71–87	80
Rollers	75–82	80
Tractors	77–82	80
Front-End Loaders	77–90	86
Hydraulic Backhoe	81–90	86
Hydraulic Excavators	81–90	86
Graders	79–89	86
Air Compressors	76–89	86
Trucks	81–87	86

Source: Hans Giroux & Associates, July 24, 2012.
dBA = A-weighted decibels
ft = feet/foot
ft-lb/blow = foot-pounds per blow
L_{max} = maximum instantaneous noise level

There are currently no noise-sensitive receivers within 1,000 ft of planned construction activities. There are, however, residential uses proposed for the vacant auto dealership east and southeast of the proposed Brookfield development. Depending upon the progress of either project, there could be nearby noise-sensitive land uses. The FHWA has developed a construction activity noise model that is an industry standard for assessing construction activity noise impacts.

Quantitatively, the primary noise prediction equation is expressed as follows for the hourly average noise level (L_{eq}) at distance D between the source and receiver (dB):

$L_{eq} = L_{max}$ @ 50 ft – 20 Log(D/50) + 10 Log (U.F%/100) – I.L. (bar)

Where:

L_{max} @ 50 ft is the published reference noise level at 50 ft
U.F.% is the usage factor for full power operation per hour
I.L. (bar) is the insertion loss for intervening barriers

Published reference noise levels for heavy construction equipment used in clearing, excavation and grading include the following:

Dozers	85 dBA
Tractors	80 dBA
Backhoes	86 dBA
Excavators	86 dBA
Graders	86 dBA

(Source: Noise Control for Buildings and Manufacturing Plants, BBN, 1987)

Assuming three large pieces of equipment operate in close proximity, their combined L_{max} reference level is 91 dBA at 50 ft. Under a clear line of sight and a typical usage factor of 40 percent, the hourly noise level as a function of distance is as follows:

Distance to Source	Hourly Level
100 ft	81 dBA
200 ft	75 dBA
320 ft	71 dBA
400 ft	69 dBA
500 ft	67 dBA
640 ft	65 dBA
800 ft	63 dBA
1000 ft	61 dBA

Levels of 65 dBA can interfere with conversation and levels of 75 dBA can intrude into quiet interior activities such as reading or children napping even with closed windows. Except in limited locations, noise levels in any already completed residential developments will not exceed 75 dBA L_{eq} during construction. Outdoor levels of 65 dBA may extend further into adjacent noise-sensitive uses, but completed structures and perimeter walls will reduce the construction noise footprint. City policy is therefore to restrict construction activities involving heavy equipment to hours of lesser residential sensitivity if occupied residences are nearby.

The City's Municipal Code permitted construction hours are 7 a.m. to 8 p.m. on weekdays and on Saturdays. Construction is not permitted on any national holiday or on any Sunday. These hours are included as condition on any project construction permits and these limits

will serve to minimize any adverse construction noise impact potential for adjacent noise-sensitive land uses.

Although construction noise impacts are less than significant and mitigation measures are not required, the following construction practices are recommended to further reduce construction noise levels:

- All mobile equipment should have properly operating and maintained mufflers.
- Haul routes should avoid residential development, where feasible.

Short-Term Construction Vibration Impacts. Construction activities generate groundborne vibration when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of groundborne vibration include discernible movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Vibration-related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Within the soft sedimentary surfaces of much of Southern California, ground vibration is quickly damped out. Groundborne vibration is almost never annoying to people who are outdoors (Federal Transit Authority [FTA] 2006).

Groundborne vibration from construction activities rarely reaches levels that can damage structures. Because vibration is typically not an issue, very few jurisdictions have adopted vibration significance thresholds. Vibration thresholds have been adopted for major public works construction projects, but these relate mostly to structural protection (cracking foundations or stucco) rather than to human annoyance.

Vibration is most commonly expressed in terms of the root-mean-square (RMS) velocity of a vibrating object. RMS velocities are expressed in units of vibration decibels. The range of vibration decibels (VdB) is as follows:

- 65 VdB: threshold of human perception
- 72 VdB: annoyance due to frequent events
- 80 VdB: annoyance due to infrequent events
- 94–98 VdB: minor cosmetic damage

To determine potential impacts of the project's construction activities, estimates of vibration levels induced by the construction equipment at various distances are presented in Table 4.12.E.

Table 4.12.E: Approximate Vibration Levels Induced by Construction Equipment

Equipment	Approximate Vibration Levels (VdB)			
	25 ft	50 ft	100 ft	1,000 ft
Pile Driver	93	87	81	61
Large Bulldozer	87	81	75	55
Loaded Truck	86	80	74	54
Jackhammer	79	73	67	47
Small Bulldozer	58	52	46	26

Source: Hans Giroux & Associates, July 24, 2012.

ft = feet

FTA = Federal Transit Authority

VdB = vibration decibel

With the exception of pile driving, which is not anticipated for use on this project, the on-site construction equipment that would create the maximum potential vibration is a large bulldozer. The stated vibration source level in the FTA Handbook for such equipment is 81 VdB at 50 ft from the source. By 1,000 ft, the vibration level dissipates to 55 VdB, which is below the threshold of human perception. The nearest residential receptor is approximately 1,500 ft from the project site and would not experience any perceptible vibration impacts. Construction activity vibration impacts are considered less than significant.

Long-Term Traffic Noise Impacts.

Noise Impacts on Land Uses Adjacent to the Project Site Due to Proposed Project. The Federal Highway Administration (FHWA) highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. Traffic noise levels were weighted and summed over a 24-hour period in order to determine the CNEL values of any increase in noise.

Tables 4.12.F and 4.12.G show the change in noise levels due to the projected project traffic. These noise levels represent worst-case scenarios, which assume that no shielding is provided between the traffic and the location where the noise contours are drawn. The specific assumptions used in developing these noise levels and model printouts are provided in Appendix G of this IS/MND.

Table 4.12.F: Near-Term Traffic Noise Impact Analysis (CNEL in dBA at 50 ft from Centerline)

Roadway Segment	Existing	Existing + Project	2015	2015 + Project	2030	2030 + Project
Towne Centre Drive/Bake Pkwy.–Auto Center Drive	66.3	66.3	66.9	67.4	66.9	67.4
Towne Centre Drive/Auto Center Drive–Lake Forest Drive	66.3	66.3	66.3	66.3	66.3	66.3
Towne Centre Drive/Auto Center Drive–Lake Forest Drive	66.3	66.3	66.9	66.9	66.9	66.9
Bake Pkwy./SR-241–Towne Centre Drive	73.3	73.3	71.8	71.8	72.2	72.2
Bake Pkwy./Towne Centre Drive–Portola Pkwy.	71.8	71.8	70.6	70.6	70.9	70.9
Portola Pkwy./Bake Pkwy.–Auto Center Drive	71.6	71.8	72.0	72.0	72.5	72.5
Portola Pkwy./Auto Center Drive–Lake Forest Drive	72.0	71.8	72.2	72.2	72.5	72.5
Lake Forest Drive/Rancho Pkwy.–SR–241	71.3	71.3	70.6	70.6	71.5	71.5
Lake Forest Drive/SR-241–Towne Centre Drive	70.6	70.6	69.9	69.9	70.6	70.6
Lake Forest Drive/Towne Centre Drive–Portola Pkwy.	69.3	69.3	69.0	69.0	69.6	69.6

Source: Hans Giroux & Associates, Inc., July 24, 2012.
CNEL = Community Noise Equivalent Level dBA = A-weighted decibel ft = feet SR-241 = State Route 241

Table 4.12.G: Project-Related Noise Impact (CNEL in dBA at 50 ft from Centerline)

Roadway Segment	Project Only Impact Existing	Project only Impact 2015	Project only Impact 2030	Cumulative Impact
Towne Centre Drive/Bake Pkwy.–Auto Center Drive	0.0	0.5	0.5	1.1
Towne Centre Drive/Auto Center Drive–Lake Forest Drive	0.0	0.0		0.0
Towne Centre Drive/Auto Center Drive–Lake Forest Drive	0.0	0.0	0.0	0.6
Bake Pkwy./SR-241–Towne Centre Drive	0.0	0.0	0.0	-1.1
Bake Pkwy./Towne Centre Drive–Portola Pkwy	0.0	0.0	0.0	-1.0
Portola Pkwy./Bake Pkwy.–Auto Center Drive	0.2	0.0	0.0	0.8
Portola Pkwy./Auto Center Drive–Lake Forest Drive	-0.2	0.0	0.0	0.5
Lake Forest Drive/Rancho Pkwy.–SR-241	0.0	0.0	0.0	0.2
Lake Forest Drive/SR-241–Towne Centre Drive	0.0	0.0	0.0	0.0
Lake Forest Drive/Towne Centre Drive–Portola Pkwy.	0.0	0.0	0.0	0.3

Source: Hans Giroux & Associates, Inc., July 24, 2012.
CNEL = Community Noise Equivalent Level dBA = A-weighted decibel ft = feet SR-241 = State Route 241

Table 4.12.F summarizes the calculated 24-hour CNEL level at 50 ft from the roadway centerline along project adjacent roadway segments. Three time frames were evaluated:

Existing Conditions (with and without project), 2015 (with and without project), and 2030 (with and without project).

Noise impacts can be described in three categories. The first is audible impacts that refer to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 decibels (dB) or greater because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise levels of less than 1.0 dB, which are inaudible to the human ear. Only audible changes (i.e., 3.0 dB or greater) in existing ambient or background noise levels are considered potentially significant.

The project itself would not cause any roadway segment to exceed 3 dBA. The largest project-related noise increase is +0.5 dBA at 50 ft from the roadway centerline. This segment is along Towne Centre Drive between Bake Parkway and Auto Center Drive, adjacent to the project entrance.

Cumulative impacts compare the Future with Project noise levels with Existing No Project scenario. The majority of the cumulative increases are attributed to area growth that would occur with or without project implementation. The largest cumulative traffic noise increase is +1.1 dBA, again at Towne Centre Drive between Bake Parkway and Auto Center Drive, which is less than 3 dBA. Therefore, both project-only traffic noise impacts and cumulative traffic noise impacts are considered to be less than significant. In areas of peak traffic noise along Bake Parkway, Alton Parkway would divert a portion of Bake Parkway traffic, which would result in lower increases of noise levels. Both project-only traffic noise impacts and cumulative traffic noise impacts are considered less than significant.

On-Site Traffic Noise Impacts. Table 4.12.H lists the existing and predicted future traffic noise levels along Bake Parkway and Portola Parkway, 50 ft from the roadway centerline. Residential recreational area traffic noise exposures are calculated at areas of probable use (patio, balcony, etc.). Receiver building locations for the proposed project closest to Bake Parkway and Portola Parkway were assessed for noise impacts. These receivers include decks in Buildings 1-7.

Table 4.12.H: Buildings 1-7 Second-Story Decks Expectant Noise Levels at Buildout (dBA CNEL)

	Existing Noise Level at 50 ft to Centerline	Future Noise Level at 50 ft to Centerline	Future Facade Noise Loading
Portola Parkway	71.6	72.5	69.1
Bake Parkway	71.8	70.9	68.9

Note: Hans Giroux & Associates, July 24, 2012.
CNEL = Community Noise Equivalent Level dBA = A-weighted decibel ft = feet

Noise levels at the building facade are not necessarily representative of what a receiver might observe on an exterior deck or balcony. The decks facing Portola Parkway or Bake Parkway would be structurally shielded on three sides. A person sitting at an outdoor patio table or on a lounge chair would only have a partial view of passing vehicles and associated noise. On average, shielding effects would produce a -3 dBA reduction from the direct line-of-sight condition. Future noise levels on main decks in Buildings 1–7 would be 66 dBA CNEL. Such levels would very marginally exceed the City of Lake Forest exterior noise standard of 65 dBA CNEL.

If the decks on these units are required to meet established noise thresholds, noise protection may be required. A transparent noise shield (e.g., Plexiglas) for this unit along the deck portion facing Portola or Bake Parkways would reduce noise by at least 5 dBA and provide compatibility compliance. Because a shield must break the line-of-sight between the receiver and noise source, there is no simple mitigation measure to only reduce noise levels by the needed 1 dBA. A 5.5 ft Plexiglas wall would reduce noise levels more than 1 dBA, which would result in noise levels well below 65 dBA CNEL.

Recreational uses at the proposed project are also considered to be sensitive noise receptors since the area is common outdoor space. This area is protected from roadway noise by the perimeter residential units such that noise levels are expected to be well within the 65 dBA CNEL limit.

The buildings on the corner of Bake and Portola Parkways (Buildings 3 and 4) have ground-floor units with patios that have a view of these roadways. These patios exceed 6 ft in depth and are, therefore, subject to the Safety and Noise Element threshold for outdoor habitable space. These patios are set back from both roadways by 200 ft; noise would be below 65 dBA CNEL due to the distance separation. These buildings also have second-story patios that have a potential view of both roadways. The Building 3 units front Bake Parkway, and the Building 4 units front Portola Parkway. However, these decks are set back from the roadways they front by 200 ft. Additionally, Building 3 partially shields Building 4 street noise, and vice versa. This directional shielding would provide approximately -3 dBA or more noise attenuation. The potentially impacted decks on Buildings 3 and 4 are recessed and are, therefore, afforded -2 dBA of noise attenuation for the resultant noise level described in Tables 4.12.I and 4.12.J.

Table 4.12.I: Building 3 Second-Story Decks Expectant Noise Levels at Buildout (CNEL)

Unit Evaluated	Distance from Roadway (ft)	Project Traffic Noise Level at Unit	Attenuation from Building 3 Shielding (dBA)	Attenuation for Recessed Location (dBA)	Residual Noise Level (dBA)
Plan 3x	200	64.2	-3	-2	59.2
Plan 5	200	64.2	-3	-2	59.2

Note: Hans Giroux & Associates, July 24, 2012.
CNEL = Community Noise Equivalent Level dBA = A-weighted decibel ft = feet

Table 4.12.J: Building 4 Second-Story Decks Expectant Noise Levels at Buildout (CNEL)

Unit Evaluated	Distance from Roadway (ft)	Project Traffic Noise Level at Unit	Attenuation from Building 4 Shielding (dBA)	Attenuation for Recessed Location (dBA)	Residual Noise Level (dBA)
Plan 3	200	66.5	-3	-2	61.5
Plan 3x	200	66.5	-3	-2	61.5
Plan 4	200	66.5	-3	-2	61.5

Note: Hans Giroux & Associates, July 24, 2012.
CNEL = Community Noise Equivalent Level dBA = A-weighted decibel ft = feet

Buildings along Auto Center Drive (including all second-story decks in Building 1) are projected to experience noise levels of less than 65 dBA CNEL. The future with project scenario shows an estimated 1,000 vehicles per day on this roadway, which would translate to less than 58 dBA CNEL at 50 ft from the roadway centerline at a traffic speed of 45 miles per hour (mph).

Plan 2 and Plan 6 units each have smaller decks outside their master bedrooms at the end/ corner of each unit. The depth of these decks is less than 6 ft and, therefore, does not meet the Safety and Noise Element threshold in which noise impact/mitigation on outdoor habitable space must be evaluated.

Interior Noise Levels. For the units exposed to the greatest noise levels in the complex (units fronting Bake and Portola Parkways), the noise level has been shown to be a maximum of 69 dBA CNEL immediately outside the units (in their patio areas, as shown in Table 4.12.H). Exterior-to-interior attenuation of 24 dBA would, therefore, be required to meet the interior noise standard of 45 dBA CNEL in habitable rooms with Portola Parkway and Bake Parkway frontage. For typical wood-frame construction with stucco and gypsum board wall assemblies, the noise level reduction is as follows:

- Partly open windows: 12 dBA
- Closed single-paned windows: 20 dBA
- Closed dual-paned windows: 30 dBA

Use of dual-paned windows is required by the CBC for energy conservation in new residential construction. Interior noise standards would, therefore, be met with a large margin of safety, with noise levels of only 39 dBA CNEL when windows are closed at the noisiest units. It is noted that where window closure is a requirement for interior noise control, the CBC requires provision of supplemental ventilation at a specified rate with a specified fraction of fresh make-up air. In order to meet the CBC requirements of providing supplemental ventilation at a specified rate with a specified fraction of fresh make-up air, and to meet the interior noise standard with prolonged periods of time with windows closed, an

air conditioning system, a form of mechanical ventilation, is required for all dwelling units fronting Portola Parkway and Bake Parkway.

The CBC also requires that horizontal sound transmission be controlled between adjacent units, and the vertical noise and footfall impact be mitigated within stacked units. Party walls and floor-ceiling assemblies must be constructed to achieve a sound transmission class (STC) of 50. The impact isolation class (IIC) must be 50 or higher for floor-ceiling transmission. If required by the city, documentation of intra-unit sound isolation would be included in a final acoustical report produced as part of the building plan check process.

Long-Term Stationary Noise Impacts. The proposed project site is adjacent to a commercial strip mall and a Mercedes dealership. As shown previously in Table 4.12.C, the CNEL along the project boundary near the existing Mercedes dealership is less than 58 dBA CNEL, and the hourly equivalent continuous sound level (L_{eq}) is not greater than 56 dBA L_{eq}. However, the noise standards presented previously in Table 4.12.B contain an L_{max} threshold as well as for 5, 15, and 30 minutes (in an hour). Therefore, these parameters were evaluated and are shown in Table 4.12.K.

On-site Noise Impacts from Mercedes Dealership. The nocturnal noise ordinance standard is exceeded from 6:00–7:00 a.m. for the 15-minute threshold and from 5:00–7:00 a.m. for the 30-minute criterion. These levels are due to ambient traffic and not the dealership and, therefore, these standards are not applicable. All noise levels are below the daytime standard during hours of dealership operations even with the inclusion of background traffic noise.

Based on the above analysis, placement of residences on the site would not create a noise constraint upon dealership sales or maintenance activities.

Similarly, measured existing noise levels, including the hourly L_{eq}, CNEL, and the percentile exceedance level (5 minutes, 15 minutes, and 30 minutes) standards, at the interface between the project site and the various commercial uses south of the site, including their loading/unloading activities and noise from the heating, ventilation, and air-conditioning (HVAC) equipment, are well within noise ordinance standards. Project implementation would not impose any noise limitations upon existing commercial standards with a considerable margin of safety.

On-site Noise Impacts from the Village Commercial Center. The proposed site plan will place residential units adjacent to the Village Center. That will create a commercial/ residential interface with a possible noise constraint that did not exist at the commercial/ commercial property line. The current commercial uses closest to proposed Buildings 7 and 8 are relatively benign in terms of noise generation. The current uses closest to these proposed buildings are (in order south from Building 7) a sushi bar (currently vacant), a nail salon, a Thai restaurant (Table 1), a sub shop (Jersey Mike's), a dental center (Towne Center Group), an acupuncturist (Dantian), and a vitamin shop.

Table 4.12.K: On-Site Noise Impacts from Mercedes Dealership Operations

Time Interval	L_{max}	5-minute maximum	15-minute maximum	30-minute maximum
15:00–16:00	65.7	54.9	52.9	52.9
16:00–17:00	67.8	55.9	53.9	52.9
17:00–18:00	64.7	55.9	53.9	52.9
18:00–19:00	61.8	54.9	53.9	52.9
19:00–20:00	64.7	54.9	52.9	51.9
20:00–21:00	64.7	54.9	52.9	51.9
21:00–22:00	62.7	53.9	46.1	45.1
22:00–23:00	66.7	46.1	45.1	44.1
23:00–24:00	66.7	46.1	43.1	42.1
0:00–1:00	54.9	45.1	43.1	42.1
1:00–2:00	61.8	46.1	43.1	42.1
2:00–3:00	58.8	43.1	41.2	41.2
3:00–4:00	63.7	45.1	42.1	41.2
4:00–5:00	64.7	53.9	51.9	46.1
5:00–6:00	60.8	55.9	53.9	52.9
6:00–7:00	63.7	57.8	55.9	54.9
7:00–8:00	68.6	57.8	55.9	54.9
8:00–9:00	64.7	56.8	54.9	53.9
9:00–10:00	64.7	55.9	53.9	52.9
10:00–11:00	61.8	55.9	53.9	52.9
11:00–12:00	70.6	56.8	53.9	52.9
12:00–13:00	69.6	55.9	53.9	52.9
13:00–14:00	68.6	55.9	54.9	53.9
14:00–15:00	68.5	54.9	52.9	52.9
Not to Exceed Daytime Standard	**75**	**65**	**60**	**55**
Not to Exceed Nocturnal Standard	**70**	**60**	**55**	**50**

Source: Hans Giroux & Associates, July 24, 2012.

L_{max} = Maximum A-weighted noise levels that are measured during a designated time interval, using fast time averaging

Noise measurements were conducted at the edge of the Village Center parking lot, located between the proposed project's Building 7 and the end tenant space (future sushi bar/restaurant that is under construction) in the commercial strip center building paralleling Bake Parkway, for 24 hours shown in Table 4.12.L. Table 4.12.L demonstrates the lack of any apparent significant commercial activity noise generation. Bake Parkway traffic is the dominant contributor to the overall noise exposure. Thresholds were exceeded, usually by only a few decibels, several times during the day. A peak noise event from 7–8 a.m. was apparently localized contamination associated with a construction activity or vehicular

movement in the parking lot directly next to the meter. Individual noise spikes, mostly between 8 a.m. and 1 p.m., were in excess of standards likely due to construction activity or parking lot vehicle activity close to the meter.

Table 4.12.L: On-Site Noise Impacts from The Village Center

Time Interval	L_{max}	5-minute maximum	15-minute maximum	30-minute maximum
14:00–15:00	67	57	54	53
15:00–16:00	66	58	57	**56**
16:00–17:00	65	58	55	54
17:00–18:00	69	56	54	53
18:00–19:00	71	55	54	53
19:00–20:00	62	55	53	53
20:00–21:00	63	57	54	53
21:00–22:00	58	54	52	52
22:00–23:00	63	52	46	46
23:00–24:00	57	46	45	44
0:00–1:00	61	46	44	43
1:00–2:00	53	45	43	42
2:00–3:00	56	44	42	41
3:00–4:00	54	45	43	41
4:00–5:00	58	52	45	45
5:00–6:00	67	57	53	**52**
6:00–7:00	65	56	53	**53**
7:00–8:00	**94**[a]	**73**[a]	**65**[a]	**62**[a]
8:00–9:00	**82**	**66**	57	55
9:00–10:00	**79**	62	57	54
10:00–11:00	**76**	58	54	53
11:00–12:00	72	58	54	53
12:00–13:00	**76**	61	55	54
13:00–14:00	74	59	54	53
Not to Exceed Daytime Standard	**75**	**65**	**60**	**55**
Not to Exceed Nocturnal Standard	**70**	**60**	**55**	**50**

[a] Localized contamination resulting from construction activity in the future sushi restaurant tenant space or other uncommon activity (e.g., excessively loud motorcycle or car).
Source: Hans Giroux & Associates, July 24, 2012.

L_{max} = Maximum A-weighted noise levels that are measured during a designated time interval, using fast time averaging
Numbers in **bold** exceed standards.

From the noise meter location, which was approximately 10 ft from the noise-generating activity, the proposed residences will have a minimum setback of 25 ft. This setback distance would be expected to attenuate noise levels by 8 dBA, as compared to the noise

level measured at 10 ft. With this degree of attenuation, all occurrences of the noise standard being exceeded in Table 4.12.L would fall below the noise standard at outdoor spaces (balconies) on the second story of Buildings 7 and 8, with the exception of the L_{max} of 94 dBA recorded from 7–8 a.m. As noted above, this spike was due to an unusual activity near the noise meter and is not typical or common for the area. This is evidenced by the lack of other spikes of the same magnitude over the 24-hour period. Interior noise levels would be attenuated by an additional 30 dBA, which brings these noise levels well below standard. As such, there is no probable noise constraint created by the proposed project for a continuation of the types of uses currently occupying the center, and no noise impact mitigation is required.

In addition to typical restaurant, retail and personal service activities at the stores in the strip center, other commercial activities include loading/unloading supplies and food at the front of the strip center. Loading and unloading activities are the noisiest common occurrence at the strip center; however, only the loading and unloading activities at the stores paralleling Bake Parkway, closest to the project site, would be discernible at the project boundary. A new sushi bar/restaurant and the new Cinnamon Productions restaurant are currently under construction.

Restaurant deliveries are made with 2-axle trucks and off-loaded with hydraulic lift gates and then hand carried or wheeled to the restaurants with dollies. Measured noise levels at commercial uses with light truck deliveries are typically less than 70 dBA L_{max} at 50 feet. This is less than the City's daytime standard and Building 7 will be more than 50 ft from the nearest loading area for any of the restaurants. The nail salon, dental group, and acupuncturist, among others, do not have truck deliveries or unloading activities. The intensity of current commercial uses is such that residential proximity will not create a noise constraint upon such uses.

Significance Determination: Potentially Significant.

Mitigation Measures:

N-1 **Construction Noise Limits.** Prior to commencement of grading activities and issuance of building permits, the City of Lake Forest (City) Director of Development Services, or designee, shall verify that the following notes appear on grading and construction plans:

1. During all site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
2. The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors (i.e., residential uses southeast of the project site, if built and occupied prior to the start of construction of the project site) nearest the project site.
3. The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-

sensitive receptors (i.e., residential uses to the southeast of the project site, if built and occupied prior to the start of construction of the project site) nearest the project site during all project construction.

4. Construction shall be limited to the hours of 7:00 a.m. to 8:00 p.m. Monday through Saturday. In accordance with City standards, no construction activities are permitted outside of these hours, and no construction is permitted on Sundays or a federal holiday without a special noise variance.

   The Construction Contractor will verify compliance with this measure during construction.

N-2 **Operations Noise Limits/Exterior.** In order to meet the City's exterior noise standards of 65 A-weighted decibels (dBA) Community Noise Equivalent Level (CNEL) threshold at all decks, the following measure must be implemented:

> Plan 6 decks facing Portola or Bake Parkways, where noise levels have been identified in this noise impact analysis to exceed 65 dBA CNEL, must include a transparent glass or plastic shield, or other similar noise-reducing barrier that would reduce noise levels to a maximum of 65 dBA CNEL. Shields must be 5.5-feet (ft) tall and fill the entire roadway frontage of the deck. This mitigation measure only applies to decks with a depth of 6 ft or greater. At the option of the builder, a future noise analysis may be conducted and submitted to the City Building Official for review to show that the actual noise level at each of these decks does not exceed the 65 dBA CNEL standard. If confirmed by the City Building Official that noise levels are satisfied, placement of a noise barrier is not required.

N-3 **Operations Noise Limits/Interior.** In order to meet the interior noise standards for prolonged periods of time with windows closed and CBC requirements, an air conditioning system (a form of mechanical ventilation) is required for all dwelling units fronting Portola Parkway and Bake Parkway.

Significance Determination After Mitigation: Less than Significant.

b) **Less than Significant Impact.** Construction of the proposed project would not require the use of pile drivers. Therefore, the primary source of vibration during the construction phase would be heavy earthmoving equipment. Based on Table 18 from the Caltrans Transportation and Construction-Induced Vibration Manual (2004), it is estimated that the on-site construction equipment would generate vibration levels of up to 0.089 inch per second (in/sec) at a distance of 25 ft. Construction activities for the proposed project would be located within 50 ft of the commercial uses to the south or east of the project site. Using Equation 12 from the Vibration Guidance Manual, the vibration level at this commercial use would be 0.042 in/sec. This level would not exceed the 0.1 in/sec threshold below which there is virtually no risk of resulting in architectural damage to normal buildings. In addition, this level is less than the 0.05 in/sec level that is distinctly perceptible to humans. Therefore, construction of the proposed project would not result in substantial groundborne vibration or

groundborne noise on properties adjacent to the project site. Similarly, project operation would not generate substantial groundborne noise or vibration. Therefore, groundborne noise and vibration impacts are considered less than significant, and no mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

c) **Less than Significant Impact.** Development of the proposed project site would result in an increase in daily traffic trips in the project vicinity over Existing Conditions; therefore, there would be a potential increase in traffic noise along access roads leading to the project site. However, as described in Response 4.12.a, the increase would be less than significant.

The proposed project includes the construction of a residential complex. The primary on-site noise-generating activity would be from the parking lot. The proposed residential uses to the south of the proposed project are located at a distance of approximately 60 ft, where they would be exposed to parking lot noise of up to 68 dBA L_{max}. This level is less than the City's 70 dBA L_{max} nighttime noise threshold. No mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

d) **Less than Significant with Mitigation Incorporated.** Although there would be high intermittent construction noise in the project area during project construction at times, construction of the proposed project would not significantly affect land uses adjacent to the project site. In addition, construction at the project site would comply with the hourly limits specified by the City's Noise Control Ordinance and Mitigation Measure N-1. Therefore, any potential impact would be mitigated to a level that is less than significant.

Significance Determination: Potentially Significant.

Mitigation Measures: Refer to Mitigation Measure N-1.

Significance Determination After Mitigation: Less than Significant.

e) **No Impact.** The proposed project is located approximately 12 mi from John Wayne Airport. At this distance, the project site is not located within the 65 dBA CNEL airport noise contour. Therefore, no impacts related to excessive airport noise are anticipated, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

f) **No Impact.** The project site is not located within the vicinity of a private airstrip. Please also refer to Response 4.12.e. Therefore, there are no impacts related to this issue, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

4.15 POPULATION AND HOUSING *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
(b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
(c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion:

a) **Less than Significant Impact.** As discussed in Section 4.12, the proposed project requests an amendment to the FRPC to increase the allowable units from 3,500 units to 3,651 units. While this increase citywide of 151 units and 429 residents[1] would not be significant (i.e., the population increase would be less than 1 percent over existing conditions for the entire City), the FRPC was initially drafted to set a cap on built-out conditions in order to balance growth increases and environmental impacts and the proposed project would exceed the original built-out condition set by the plan. However, while the proposed project would exceed the previously approved allowable units, the City has been reviewing areas that could provide additional residential uses within the City, including redesignation areas such as the project site. In addition, implementation of the proposed project would not result in the need for extended or modified infrastructure including roadways or water and wastewater facilities (refer to Sections 4.18 and 4.19, respectively, for detail); therefore, the proposed project would not result in indirect population growth. Construction of the proposed project may employ people who choose to move to the City for the purposes of working during project construction; however, most employees are expected to come from the existing City population and that of the surrounding communities. Therefore, the proposed project would not induce substantial population growth in the area either directly or indirectly, and no mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

b) **No Impact.** The northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land. No housing units are located on site, and housing displacement impacts would not occur as a result of project implementation. Therefore, the proposed project would not result in an impact related to housing displacement, and no mitigation is required.

[1] Based on the 2.84 average household size recorded in the U.S. Census Bureau, 2006–2010 American Community Survey.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

c) **No Impact.** The northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land. No housing units or other forms of temporary housing are located on site, and no people would be displaced as a result of project implementation. Therefore, the proposed project would not result in an impact related to the displacement of people, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

4.16 PUBLIC SERVICES *Would the project:*	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
(a) Would the project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i) Fire Protection?	☐	☐	☒	☐
ii) Police Protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☒	☐
iv) Parks?	☐	☐	☒	☐
v) Other public facilities?	☐	☐	☒	☐

Discussion:

a) i.) **Less than Significant Impact.** The OCFA provides fire and emergency services throughout the City. The OCFA is a regional fire service agency that provides structure fire protection, emergency medical and rescue services, hazardous inspections and response, and public education activities to almost 1.4 million residents in 22 cities and all unincorporated areas in Orange County. The OCFA consists of 61 fire stations. The closest fire station is Station 54, located 0.69 mi from the project site at 19811 Pauling Avenue and response time from receipt of call to the project site is estimated at 6 minutes. OCFA consists of divisions, 8 battalions, 61 fire stations, 814 firefighters, 6 executive chiefs, and 252 professional staff. In addition, the OCFA has 475 authorized reserve firefighters. In 2009, the OCFA responded to 85,787 emergency calls with 163,050 unit responses. Response times in the City vary based on the level of emergency; however, the response time goal for the first unit to arrive is 7 minutes and 20 seconds from receipt of call to on scene of call at 80% of the time.

According to the OCFA Fire Hazard Map, as well as the Statewide CalFire Map, the proposed project is not located in an area designated as a Special Fire Protection Area or within an area designated by the state as a Fire Hazard Severity Zone. In addition, according to the City General Plan Safety and Noise Element, the project site is not located in an Area of Fire Hazard.

Fire Department access would be available from Auto Center Drive. The primary access point is just south of Portola Parkway, and the secondary access is on the south end of the project site near Towne Centre Drive. There is an existing fire hydrant on the corner of Portola Parkway and Auto Center Drive, and the proposed project includes four fire hydrants along the private road, as well as sufficient space and turning radius for fire trucks. The project would comply with all Fire Department access requirements and California Fire Code requirements for the placement of fire hydrants and the use of sprinkler systems. Project compliance with

requirements set forth in the Fire Code would provide fire protection for people and structures, as well as the provision of emergency medical services on site.

The proposed project is a residential community, which would increase the number of on-site visitors and personnel, thereby incrementally increasing demand for fire and emergency medical services. Any increase in demand could be accommodated by existing personnel and Fire Department facilities. In addition, the proposed project would not result in a significant traffic impact to any study area intersections. Therefore, the proposed project would not impair emergency response vehicles, and average response times in the area would remain within acceptable response time limits.

In summary, the proposed project would be designed to comply with all Fire Department access requirements and California Fire Code requirements, would not impair emergency response vehicles or increase response times, and would not substantially increase calls for service. Therefore, with project implementation, the response profile for the project area would remain unchanged in terms of service delivery, staffing requirements, facilities, and equipment. The Fire Department would be able to service the proposed project at the same levels provided to this area of the City before project implementation, and impacts to fire protection services are expected to be less than significant as a result of project implementation. In addition, the project would not require new or physically altered public facilities for fire protection. No mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

ii) **Less than Significant Impact.** The Orange County Sheriff's Department (OCSD) is responsible for providing law enforcement protection within unincorporated areas of Orange County, as well as in incorporated cities, such as the City of Lake Forest, that contract with the OCSD for protection. The OCSD has approximately 3,800 sworn and professional staff members and over 800 reserve personnel. The proposed project is located within the service area of the South Orange County Sheriff's Department substation in Aliso Viejo located at 11 Journey in Aliso Viejo. The Aliso Viejo substation has 48 deputies. Additionally, management staff is stationed at Lake Forest City Hall to assist with crime prevention programs in the City.

The OCSD has established service goals and response times for emergency calls. It is the goal of the City to work with the OCSD to ensure that service corresponds to the number of residents and businesses in the City as well as current crime problems. Average response times range from 5 minutes, for Priority 1 calls to 21 minutes, 30 seconds, for Priority 3 calls. These are considered adequate response times for the project site and the OCSD.

The proposed project would likely create a slight increase in police services due to the increase in occupants on site, but project impacts on policing demand and response times, given the size of the project and proposed uses, would be less than significant. In addition, the project would not require new or physically altered public facilities for police protection. No mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

iii) **Less than Significant Impact.** The City is served by the Saddleback Valley Unified School District (SVUSD), specifically, Foothill Ranch Elementary, Rancho Santa Margarita Intermediate, and Trabuco Hills High School. In the 2011–2012 school year enrollment for Foothill Ranch Elementary, Rancho Santa Margarita Intermediate, and Trabuco Hills High School were 1,171, 1,529, and 3,146 students respectively. The proposed project would generate 15 elementary, 7 middle school, and 15 high school students based on SVUSD student generation factors.[1] These students would be located within the attendance areas of Foothill Ranch Elementary, Rancho Santa Margarita Intermediate, and Trabuco Hills respectively. Pursuant to Section 65996 of the Government Code, the applicant is required to pay developer fees to the SVUSD. At the time of this report, the current developer fees are $2.97/sf of residential use and $0.47/sf of commercial and industrial uses. Section 65996 designates Section 17620 of the Education Code (the mitigation fees authorized by SB 50) and Section 65970 of the Government Code to be the exclusive method for considering and mitigating development impacts on school facilities. With payment of these fees potential school impacts are considered less than significant.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

iv) **Less than Significant Impact.** As stated in Section 4.13, the proposed project includes construction of 151 single-family units that would increase the population in the City by approximately 429 residents. Compared to the City's existing population in 2010 of 77,264, the additional 429 persons would represent less than a 1 percent increase in population over existing conditions, which would not be considered substantial. As such, while the proposed project would generate an increased demand

[1] Based on the following Saddleback Valley Unified School District student generation rates: 0.10 students per unit for K–6, 0.046 students per unit for Grades 7–8, and 0.10 students per unit for Grades 9–12.

for parks, this increase would not be substantial, and the project would not require the construction of public park facilities. In addition, the proposed project includes recreational areas on site. Therefore, while the proposed project would likely create a slight increase in the demand for parks or the availability of parks within the City due to the increase in population, given the size of the project and proposed uses, project impacts would be less than significant. No mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

v) **Less than Significant Impact.** As discussed above and in Section 4.14, the proposed project would result in less than a 1 percent increase in population over existing conditions. As such, while the proposed project would generate an increased demand for other public facilities, this increase would not be substantial, and the project would not require the construction of new facilities. Therefore, while the proposed project would likely create a slight increase in the demand for other public facilities, given the size of the project and proposed uses, this impact would be less than significant. No mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

4.17 RECREATION *Would the project:*	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
(b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Discussion:

a) **Less than Significant Impact.** As stated in Section 4.13 Population and Housing, the proposed project would result in population growth of 429 persons that could generate an increased demand for recreation facilities. According to the FRPC, the City requires a minimum 5 percent of the net area of a project to be convenient, accessible, and useable open space. This calculation would include parks, trails, recreation areas, and similar passive or active spaces. Based on the proposed project net area of 7.49 acres, the required open space for the proposed project would be 0.3745 acre. As discussed in Section 2.0, Project Description, the proposed project includes construction of an 8,500 sf recreation and gathering area (approximately 0.34 acre) centrally located on the project site that would serve as the social center of the community, as well as areas characterized as park (0.32 acre). The recreation area would include outdoor meeting spaces, cabanas, pool, spa, barbeque, fire pit, double-sided fireplace, outdoor dining area, and restrooms. Therefore the proposed project would provide recreational areas and useable open space. In addition as part of project approval, the applicant will be required to meet or exceed the City's Subdivision Code requirements for recreational facilities. With the project's on-site recreational facilities and compliance with the Subdivision Code, the proposed project's potential effects on existing neighborhood and regional parks or other recreational facilities is considered less than significant.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

b) **Less than Significant Impact.** Refer to Response 4.17.a, above. The proposed project includes an 8,500 sf recreation and gathering area centrally located on the project site that would serve as the social center of the community, as well as areas characterized as park (0.32 acre). While the proposed project would result in population growth within the community, the proposed project would not require the construction or expansion of recreational facilities that would result in adverse effects on the environment and impacts would be below a level of significance. No mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

4.18 TRANSPORTATION/TRAFFIC *Would the project:*	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and nonmotorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
(b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
(c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
(d) Substantially increase hazards due to a design feature (e. g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
(e) Result in inadequate emergency access?	☐	☐	☐	☒
(f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

Discussion:

a) **Less than Significant Impact.** Roadway performance is most often controlled by the performance of intersections, specifically during peak traffic periods. This is because traffic control at intersections interrupts traffic flow that would otherwise be relatively unimpeded except for the influences of on-street parking, access to adjacent land uses, or other factors resulting in interaction of vehicles between intersections. For this reason, traffic analyses for individual projects typically focus on peak-hour operating conditions for key intersections rather than roadway segments. Operating conditions at intersections are typically described in terms of Level of Service (LOS). LOS is a measure of a roadway's operating performance and is a tool used in defining thresholds of significance. It is described with a letter designation from A to F, with LOS A representing the best operating conditions and LOS F the worst. LOS D is the performance standard for the roadway signalized intersections in the study area as adopted by the City and Orange County Transportation Authority (OCTA) as part of the County's Congestion Management Program (CMP).

In conformance with the City and CMP requirements, a.m. and p.m. peak-hour operating conditions for the key signalized study intersections were evaluated using the Intersection Capacity Utilization (ICU) methodology. The a.m. and p.m. peak-hour operating conditions for the key study intersections were evaluated using the ICU Methodology for signalized intersections and Chapter 17 of the Highway Capacity Manual 2000 (HCM 2000) for unsignalized intersections. The California Department of Transportation (Caltrans) also

utilizes HCM methodology to determine LOS at intersections providing access to State-controlled facilities.

The ICU methodology is intended for signalized intersection analysis and estimates the volume-to-capacity (v/c) relationship for an intersection based on the individual v/c ratios for key conflicting traffic movements. The ICU numerical value represents the percent signal (green) time and thus capacity, required by existing and/or future traffic. The ICU value translates to an LOS estimate, which is a relative measure of the intersection performance. The ICU value is the sum of the critical v/c ratios at an intersection; it is not intended to be indicative of the LOS of each of the individual turning movements. The six qualitative categories of LOS for signalized intersections have been defined along with the corresponding ICU value range and are shown in Table 4.16.A.

Table 4.16.A: Level of Service Criteria for Signalized Intersections (ICU Methodology)

LOS	ICU Value (v/c)	Level of Service Description
A	≤0.60	LOS A describes operations with low control delay, up to 10 seconds per vehicle. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	0.61–0.70	LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than the LOS A, causing higher levels of delay.
C	0.71–0.80	LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	0.81–0.90	LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	0.91–1.00	LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent.
F	≥1.00	LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered unacceptable to most drivers, often occurs with oversaturation, this is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high V/C ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

Source: Foothill Ranch Towne Centre Residential General Plan Amendment and Zone Change Traffic Study (Stantec, August 2012).
ICU = Intersection Capacity Utilization LOS = level of service v/c = volume-to-capacity ratio

For stop-controlled intersections (unsignalized), the HCM methodology estimates the average control delay for each of the subject movements and determines the LOS for each movement. The overall average control delay measured in seconds per vehicle and the LOS are then calculated for the entire intersection. The six qualitative categories of LOS for unsignalized intersections and the corresponding HCM control delay value range are shown in 4.16.B.

Table 4.16.B: Level of Service Criteria for Unsignalized and Signalized Intersections (HCM Methodology)

LOS	HCM Delay Value (sec/veh) Unsignalized	HCM Delay Value (sec/veh) Signalized	LOS Description
A	≤10.0	≤10.0	Little or no delay
B	>10.0 and ≤15.0	>10.1 and ≤20.0	Short traffic delays
C	>15.0 and ≤25.0	>20.1 and ≤35.0	Average traffic delays
D	>25.0 and ≤35.0	>35.1 and ≤55.0	Long traffic delays
E	>35.0 and ≤50.0	>55.1 and ≤80.0	Very long traffic delays
F	>50.0	>80.0	Severe congestion

Source: Foothill Ranch Towne Centre Residential General Plan Amendment and Zone Change Traffic Study (Stantec, August 2012).
HCM = Highway Capacity Manual LOS = level of service sec/veh = seconds per vehicle

The City considers LOS D to be the minimum acceptable condition that should be maintained during the a.m. and p.m. peak hours for all intersections. For this analysis, impacts to local and regional transportation systems are considered significant if the project would increase traffic demand at a key study area signalized intersection by greater than 1.0 percent of capacity (ICU increase > 0.01), causing or worsening LOS E or F (ICU > 0.090). Traffic impacts at key unsignalized study area intersections would be considered significant if the project would add greater than 1.0 second of delay at an intersection operating at LOS E or F.

An analysis of the Existing, Year 2015 and Year 2030 conditions at 12 intersections in the vicinity of the proposed project and the proposed project driveways was completed to determine potential project impacts on the circulation system. The 12 key study intersections are listed below:

Signalized

1. Bake Parkway at Portola Parkway
2. Auto Center Drive/Portola Parkway
3. Lake Forest Drive/Portola Parkway
4. Bake Parkway/Towne Centre Drive
7. Lake Forest Drive at Towne Centre Drive
8. Lake Forest Drive at SR-241 Northbound On-Ramp

9. Lake Forest Drive at SR-241 Southbound Off-Ramp
10. Bake Parkway/Rancho Parkway North
11. Lake Forest Drive/Rancho Parkway

Unsignalized

5. Auto Center Drive (West) at Towne Centre Drive
6. Auto Center Drive (East) at Towne Centre Drive
12. Auto Center Drive (West) at Auto Center Drive (East)

To determine the number of trips that could be generated by the project, trip generation rates from the City's Opportunities Study Area (OSA) Traffic Study were used for the residential land use. Table 4.16.C summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed project and presents the forecasted daily and peak-hour project traffic volumes of a typical weekday. As shown in this table, the proposed project is forecast to generate 1,231 daily trips (50 percent arriving and 50 percent departing), with 102 trips (26 inbound, 76 outbound) produced in the a.m. peak hour and 118 trips (68 inbound, 50 outbound) produced in the p.m. peak hour on a typical weekday.

Table 4.16.C: Project Traffic Generation Rates and Forecast

Land Use	Daily	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Trip Generation Factors: Condominiums (DU)	8.15	0.17	0.50	0.67	0.45	0.33	0.78
Proposed Project Trip Generation Forecast: Condominiums (151 DU)	1,231	26	76	102	68	50	118

Source: Foothill Ranch Towne Centre Residential General Plan Amendment and Zone Change Traffic Study (Stantec, August 2012).
DU = Dwelling Unit

The existing a.m. and p.m. peak-hour traffic volumes for the 12 key study intersections evaluated in this section were collected in March 2012. Existing plus project traffic volumes were developed by adding the project traffic to the existing traffic volumes using the City of Lake Forest Traffic Analysis Model (LFTAM). Existing and existing plus project LOS are shown in Table 4.16.D. Because the City utilizes the ICU methodology to calculate LOS at signalized intersections and Caltrans utilizes the HCM methodology to calculate LOS at signalized intersections, LOS results for both methodologies are reported for the SR-241 ramp intersections.

Table 4.16.D: Existing Conditions Peak-Hour Intersection Capacity Analysis Summary

Key Intersection	Time Period	Existing Condition		Existing with Project		ICU/Delay Increase	Significant Impact?
		ICU/Delay	LOS	ICU/Delay	LOS		
1. Bake Parkway at Portola Parkway	AM	0.53	A	0.53	A	0.00	No
	PM	0.56	A	0.55	A	-0.01	
2. Auto Center Drive at Portola Parkway	AM	0.38	A	0.40	A	0.02	No
	PM	0.35	A	0.36	A	0.01	
3. Lake Forest Drive at Portola Parkway	AM	0.46	A	0.46	A	0.00	No
	PM	0.72	C	0.71	C	-0.01	
4. Bake Parkway at Towne Centre Drive	AM	0.69	B	0.69	B	0.00	No
	PM	0.60	A	0.61	B	0.01	
5. Auto Center Drive (West) at Towne Centre Drive	AM	10.3 s/v	B	10.5 s/v	B	0.2 s/v	No
	PM	11.9 s/v	B	12.3 s/v	B	0.4 s/v	
6. Auto Center Drive (East) at Towne Centre Drive	AM	9.9 s/v	A	10.1 s/v	B	0.2 s/v	No
	PM	11.9 s/v	B	12.3 s/v	B	0.4 s/v	
7. Lake Forest Drive at Towne Centre Drive	AM	0.39	A	0.37	A	-0.02	No
	PM	0.50	A	0.49	A	-0.01	
8. Lake Forest Drive at SR-241 Northbound On-Ramp	AM	0.30	A	0.31	A	0.01	No
	PM	0.37	A	0.37	A	0.00	
8. Lake Forest Drive at SR-241 Northbound On-Ramp	AM	3.5 s/v	A	3.8 s/v	B	0.3 s/v	No
	PM	3.7 s/v	A	3.7 s/v	B	0.0 s/v	
9. Lake Forest Drive at SR-241 Southbound Off-Ramp	AM	0.43	A	0.44	A	0.01	No
	PM	0.43	A	0.42	A	-0.01	
9. Lake Forest Drive at SR-241 Southbound Off-Ramp	AM	10.8 s/v	B	10.8 s/v	B	0.0 s/v	No
	PM	6.0 s/v	A	6.1 s/v	B	0.1 s/v	
10. Bake Parkway at Rancho Parkway North	AM	0.59	A	0.60	A	0.01	No
	PM	0.71	C	0.70	B	-0.01	
11. Lake Forest Drive at Rancho Parkway	AM	0.39	A	0.39	A	0.00	No
	PM	0.49	A	0.49	A	0.00	
12. Auto Center Drive at Auto Center Drive	AM	8.7 s/v	A	8.8 s/v	A	0.1 s/v	No
	PM	8.7 s/v	A	8.8 s/v	A	0.1 s/v	

Source: Foothill Ranch Towne Centre Residential General Plan Amendment and Zone Change Traffic Study (Stantec, August 2012).
ICU = Intersection Capacity Utilization LOS = level of service SR-241 = State Route 241
s/v = seconds per vehicle (delay)

As shown in this table, all 12 key study intersections currently operate at acceptable LOS C or better under the existing condition. As also shown in this table, all 12 key study intersections are forecast to operate at acceptable LOS C or better for the existing plus project condition.

The project opening year (Year 2015) a.m. and p.m. peak-hour traffic volumes were developed using the Lake Forest Transportation Mitigation Program (LFTM) model. For the Year 2015 and Year 2030 conditions, the net difference in traffic between the proposed project land use (e.g., 151 dwelling units [DU]) and the existing land use (e.g., 27,743 sf Auto Dealer) was added to the circulation system. Trip generation rates for Auto Dealer were

referenced from the Institute of Transportation Engineers (ITE) *Trip Generation* Manual, Eighth Edition. Table 4.16.E summarizes the net trip generation applied to these future conditions.

Table 4.16.E: Net Project Traffic Generation Rates and Forecast

Land Use	Daily	A.M. Peak Hour			P.M. Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Trip Generation Factors: Condominiums (DU)	8.15	0.17	0.50	0.67	0.45	0.33	0.78
Auto Dealer (TSF)	33.34	1.50	0.53	2.03	1.01	1.58	2.59
Proposed Project Trip Generation Forecast: Condominiums (151 DU)	1,231	26	76	102	68	50	118
Auto Dealer (27.743 TSF)	926	42	15	57	28	44	72
Difference	305	-16	61	45	40	6	46

Source: Foothill Ranch Towne Centre Residential General Plan Amendment and Zone Change Traffic Study (Stantec, August 2012).
DU = Dwelling Unit TSF = Thousand Square Feet

As shown in Table 4.16.E, the net trip generation of the proposed project is forecast to generate 305 daily trips (50 percent arriving and 50 percent departing), with 45 trips (-16 inbound, 61 outbound) produced in the a.m. peak hour and 46 trips (40 inbound, 6 outbound) produced in the p.m. peak hour on a typical weekday.

Year 2015 and Year 2015 plus project LOS are shown in Table 4.16.F. As shown in this table, all 12 key study intersections are forecast to operate at acceptable LOS D or better under the 2015 condition. As also shown in this table, all 12 key study intersections are forecast to operate at acceptable LOS D or better for the 2015 plus project condition.

Year 2030 and Year 2030 plus project LOS are shown in Table 4.16.G. As shown in this table, all 12 key study intersections are forecast to operate at acceptable LOS D or better under the 2030 condition. As also shown in this table, all 12 key study intersections are forecast to operate at acceptable LOS D or better for the 2030 plus project condition.

Access to the project site would be provided via two unsignalized driveways located along Auto Center Drive. The northerly driveway (Driveway 1) is proposed as full-gated access, and the southerly project driveway (Driveway 2) is proposed as a full-gated access. Table 4.16.H summarizes the LOS at the project driveways for 2030 with project conditions. As shown in this table, both project driveways are forecast to operate at acceptable LOS A during the a.m. and p.m. peak hours.

Table 4.16.F: 2015 Conditions Peak-Hour Intersection Capacity Analysis Summary

Key Intersection	Time Period	2015 Condition		2015 with Project		ICU/Delay Increase	Significant Impact?
		ICU/Delay	LOS	ICU/Delay	LOS		
1. Bake Parkway at Portola Parkway	AM PM	0.51 0.61	A B	0.51 0.62	A B	0.00 0.01	No
2. Auto Center Drive at Portola Parkway	AM PM	0.46 0.40	A A	0.46 0.40	A A	0.00 0.00	No
3. Lake Forest Drive at Portola Parkway	AM PM	0.53 0.76	A C	0.52 0.76	A C	-0.01 0.00	No
4. Bake Parkway at Towne Centre Drive	AM PM	0.54 0.59	A A	0.54 0.59	A A	0.00 0.00	No
5. Auto Center Drive (West) at Towne Centre Drive	AM PM	9.7 s/v 12.7 s/v	A B	9.7 s/v 13.6 s/v	A B	0.0 s/v 0.9 s/v	No
6. Auto Center Drive (East) at Towne Centre Drive	AM PM	10.9 s/v 14.6 s/v	B B	11.6 s/v 17.3 s/v	B C	0.7 s/v 2.7 s/v	No
7. Lake Forest Drive at Towne Centre Drive	AM PM	0.39 0.54	A A	0.35 0.55	A A	-0.04 0.01	No
8. Lake Forest Drive at SR-241 Northbound On-Ramp	AM PM	0.26 0.31	A A	0.27 0.31	A A	0.01 0.00	No
8. Lake Forest Drive at SR-241 Northbound On-Ramp	AM PM	3.7 s/v 4.7 s/v	A A	3.9 s/v 4.8 s/v	A A	0.2 s/v 0.1 s/v	No
9. Lake Forest Drive at SR-241 Southbound Off-Ramp	AM PM	0.40 0.40	A A	0.40 0.40	A A	0.00 0.00	No
9. Lake Forest Drive at SR-241 Southbound Off-Ramp	AM PM	11.9 s/v 9.2 s/v	B A	12.1 s/v 9.3 s/v	B A	0.2 s/v 0.1 s/v	No
10. Bake Parkway at Rancho Parkway North	AM PM	0.58 0.67	A B	0.59 0.67	A B	0.01 0.00	No
11. Lake Forest Drive at Rancho Parkway	AM PM	0.61 0.88	B D	0.62 0.87	B D	0.01 -0.01	No
12. Auto Center Drive at Auto Center Drive	AM PM	9.1 s/v 9.5 s/v	A A	9.1 s/v 9.5 s/v	A A	0.0 s/v 0.0 s/v	No

Source: Foothill Ranch Towne Centre Residential General Plan Amendment and Zone Change Traffic Study (Stantec, August 2012).
ICU = Intersection Capacity Utilization LOS = level of service SR-241 = State Route 241
s/v = seconds per vehicle (delay)

Table 4.16.G: 2030 Conditions Peak-Hour Intersection Capacity Analysis Summary

Key Intersection	Time Period	2030 Condition		2030 with Project		ICU/Delay Increase	Significant Impact?
		ICU/Delay	LOS	ICU/Delay	LOS		
1. Bake Parkway at Portola Parkway	AM PM	0.59 0.68	A B	0.59 0.67	A B	0.00 -0.01	No
2. Auto Center Drive at Portola Parkway	AM PM	0.52 0.40	A A	0.54 0.41	A A	0.02 0.01	No
3. Lake Forest Drive at Portola Parkway	AM PM	0.55 0.87	A D	0.54 0.87	A D	-0.01 0.00	No
4. Bake Parkway at Towne Centre Drive	AM PM	0.62 0.60	B A	0.62 0.60	B A	0.00 0.00	No
5. Auto Center Drive (West) at Towne Centre Drive	AM PM	9.9 s/v 12.6 s/v	A B	9.7 s/v 14.1 s/v	A B	-0.2 s/v 1.5 s/v	No
6. Auto Center Drive (East) at Towne Centre Drive	AM PM	11.1 s/v 14.6 s/v	B B	11.6 s/v 17.3 s/v	B C	0.5s/v 2.7 s/v	No
7. Lake Forest Drive at Towne Centre Drive	AM PM	0.37 0.55	A A	0.34 0.56	A A	-0.03 0.01	No
8. Lake Forest Drive at SR-241 Northbound On-Ramp	AM PM	0.25 0.39	A A	0.25 0.38	A A	0.00 -0.01	No
8. Lake Forest Drive at SR-241 Northbound On-Ramp	AM PM	4.0 s/v 7.4 s/v	A A	4.1 s/v 7.4 s/v	A A	0.1 s/v 0.0 s/v	No
9. Lake Forest Drive at SR-241 Southbound Off-Ramp	AM PM	0.54 0.47	A A	0.54 0.48	A A	0.00 0.01	No
9. Lake Forest Drive at SR-241 Southbound Off-Ramp	AM PM	18.9 s/v 10.3 s/v	B B	18.9 s/v 10.4 s/v	B B	0.0 s/v 0.0 s/v	No
10. Bake Parkway at Rancho Parkway North	AM PM	0.62 0.77	B C	0.63 0.78	B C	0.01 0.01	No
11. Lake Forest Drive at Rancho Parkway	AM PM	0.66 0.84	B D	0.68 0.83	B D	0.02 -0.01	No
12. Auto Center Drive at Auto Center Drive	AM PM	9.1 s/v 9.5 s/v	A A	9.1 s/v 9.5 s/v	A A	0.0 s/v 0.0 s/v	No

Source: Foothill Ranch Towne Centre Residential General Plan Amendment and Zone Change Traffic Study (Stantec, August 2012).
ICU = Intersection Capacity Utilization LOS = level of service SR-241 = State Route 241
s/v = seconds per vehicle (delay)

Table 4.16.H: Project Driveway Peak-Hour Capacity Analysis Summary

Key Intersection	Time Period	2030 Existing with Project Traffic Condition	
		Delay	LOS
13. Auto Center Drive at Driveway 1	AM PM	9.4 s/v 9.3 s/v	A A
14. Auto Center Drive (West) at Driveway 2	AM PM	8.6 s/v 8.6 s/v	A A

Source: Foothill Ranch Towne Centre Residential General Plan Amendment and Zone Change Traffic Study (Stantec, August 2012).
LOS = level of service s/v = seconds per vehicle (delay)

Because the 12 key study intersections would continue to operate at acceptable LOS under the existing, Year 2015 and Year 2030 plus project conditions, the project would not result in an ICU increase greater than 0.01 at signalized intersections, or add greater than 1.0 second of delay at an unsignalized intersection operating at LOS E or F. The proposed project would not conflict with any applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. No mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

b) **Less than Significant Impact.** Refer to Response 4.16.a above. Because the 12 key study intersections would continue to operate at acceptable LOS under the existing, Year 2015, and Year 2030 plus project conditions, the project would not result in an ICU increase greater than 0.01 at signalized intersections, or add greater than 1.0 second of delay at an unsignalized intersection operating at LOS E or F. The proposed project would not conflict with an applicable congestion management program, including but not limited to LOS standards and travel demand measures, or other standards established by the County Congestion Management Agency for designated roads or highways. No mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

c) **No Impact.** The project site is not located within 10 mi of an airport or airfield. Therefore, the project site is not located in the vicinity of any airfields or airports and would not affect air traffic patterns.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

d) **Less than Significant.** The proposed project would not introduce any new roadways or introduce a land use that would conflict with existing land uses in the surrounding area. Vehicular access to the site would be provided from Auto Center Drive. Project site access would be provided via two proposed driveways. Curb cuts would be constructed to City standards. Internal vehicle queuing and stacking would not impact ingress and egress to the site because driveway throat lengths are sufficient per the Orange County Standard Plan 1107. In addition, turning movements into and out of the project site at the project driveways are anticipated to operate at an acceptable LOS based on the worst-case scenario, which is 2030. According to the Traffic Study (Stantec, August 2012), proposed left-turn storage capacity would be sufficient to accommodate the highest anticipated queue. Therefore, the proposed project would not substantially increase hazards due to a design feature (e. g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), and no mitigation is required.

Significance Determination: Less Than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less Than Significant.

e) **No Impact.** As discussed in Section 2.0, Project Description, direct access for emergency vehicles would be provided via the two project driveways on Auto Center Drive. The two gated entries would also be equipped with automatic entry for the police and fire departments during an emergency. Also, in addition to the existing fire hydrant on the corner of Portola Parkway and Auto Center Drive, the proposed project includes four fire hydrants along the private road, as well as sufficient space and turning radius for fire trucks. The private driveway would remain open during construction, and project site access would be maintained. Therefore, implementation of the proposed project would not result in inadequate emergency access, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

f) **No Impact.** The project would not affect adopted policies supporting alternative transportation and would be subject to compliance with policies, plans, and programs of the City and other applicable agencies regarding alternative modes of transportation. Pedestrians accessing the project may utilize pedestrian facilities (e.g., sidewalks and crosswalks) that are part of the surrounding street system. A sidewalk is located along Auto Center Drive and can be used to access the site. Lake Forest Drive, Bake Parkway, and Portola Parkway are served by transit facilities (Orange County Transportation Authority [OCTA] Bus Routes 177 and 206) in the existing condition. A bus stop is located at Lake Forest Towne Centre at the corner of Towne Centre Drive and Lake Forest Drive, west of the project site. The project would not remove or relocate any alternative transportation access points. Therefore, the project does not conflict with adopted plans, policies, or programs supporting alternative transportation, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

4.19 UTILITIES/SERVICE SYSTEMS *Would the project:*	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
(a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
(b) Require or result in the construction of new water or wastewater treatment or collection facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
(c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☒	☐	☐
(d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
(e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
(f) Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
(g) Comply with federal, state, and local statutes and regulations related to solid wastes.	☐	☐	☐	☒

Discussion:

a) **Less Than Significant Impact.** Local governments and water districts are responsible for complying with Federal regulations, both for wastewater plant operation and the collection systems (e.g., sanitary sewers) that convey wastewater to the wastewater treatment facility. Proper operation and maintenance is critical for sewage collection and treatment as impacts from these processes can degrade water resources and affect human health. For these reasons, publicly owned treatment works (POTWs) receive Waste Discharge Requirements (WDRs) to ensure that such wastewater facilities operate in compliance with water quality regulations set forth by the State. WDRs, issued by the State, establish effluent limits on the kinds and quantities of pollutants that POTWs can discharge. These permits also contain pollutant monitoring, recordkeeping, and reporting requirements. Each POTW that intends to discharge into the nation's waters must obtain a WDR prior to initiating its discharge.

Implementation of the proposed project will result in the development of up to 151 residential units within 11 motorcourt-style structures. The project site is within the sewer service area of the Irvine Ranch Water District (IRWD). Treatment of wastewater generated within the service area of the IRWD (within the City of Lake Forest) is currently handled at IRWD's Los Alisos Water Recycling Plant (LAWRP) in the City of Lake Forest. Therefore, it is anticipated that any future development that could occur on the project site would be serviced by IRWD's LAWRP. Because IRWD's LAWRP is considered to be a POTW, operational discharge flows treated at the IRWD's LAWRP would be required to comply with WDRs identified for the IRWD's LAWRP by the Santa Ana Regional Water Quality Control Board

(Santa Ana RWQCB). Compliance with condition or permit requirements established by the City as well as WDRs outlined by the Santa Ana RWQCB would ensure that wastewater discharges coming from the project site and treated by the wastewater treatment facility system would not exceed applicable Santa Ana RWQCB wastewater treatment requirements. Therefore, a less than significant impact associated with this issue would occur, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

b) **Less than Significant Impact.** The City is served by the El Toro Water District, the Trabuco Canyon Water District, and the IRWD. IRWD would be the primary water supplier to the project site. The IRWD service area covers an area of 181 square miles (sq mi), which includes the City of Irvine and portions of the Cities of Costa Mesa, Lake Forest, Newport Beach, Tustin, Santa Ana, Orange, and unincorporated Orange County. IRWD provides potable and nonpotable water supply and wastewater treatment services to a population of more than 330,000. In 2010, annual water demand in the IRWD service area was almost 120,000 acre-feet (af). Approximately 21 percent of IRWD's supply is recycled water.

As previously identified, IRWD is also the wastewater service provider for the project site. IRWD's sanitary sewer system conveys wastewater to two treatment plants through more than 800 mi of sewer distribution pipelines, the Michelson Water Recycling Plant in Irvine, and the LAWRP in Lake Forest. As previously identified, the project site would be served by the LAWRP, which has a capacity of 7.5 million gallons per day (mgd). The LAWRP currently treats up to 5.5 mgd; therefore, there is an existing surplus capacity of approximately 2.0 mgd at the LAWRP.

The project site is currently partially developed with the remaining land being vacant. While there are structures located on site, the structures are vacant, and no operations currently exist on site. Therefore, the project site no longer has an existing water demand and no longer generates wastewater. Based on IRWD's Land Use and Water Use Factors, it is estimated that the proposed project's water demand would be approximately 52,850 gallons/day.[1] In addition, water demand for irrigation would be approximately 10,948 gallons/day with consideration of approximately 3.91 ac of irrigated area (landscaping and open space areas).[2] Previous demand when the project site was operating as a car dealership is estimated at 1,970 gallons/day.[3] Generally, water use and wastewater flows are related in that wastewater is generated from indoor water uses. Based on a sewer generation

[1] Based on IRWD Land Use and Water Use Factors (January 2012). Local Demands: 350 gal/du/day for Medium Density with average density of 19.5 du/acre.

[2] Based on IRWD Land Use and Water Use Factors (January 2012). Irrigation Demands: 2,800 gal/acre/day for Medium Density with average density of 19.5 du/acre.

[3] Based on IRWD Land Use and Water Use Factors (January 2012). Local Demands: 71 gal/ksf/day for General Commercial. Previous auto dealership was 27,745 sf.

rate of approximately 90 percent water consumption rates, the proposed project is anticipated to generate approximately 57,418 gallons/day of wastewater. Previous demand for wastewater service for the car dealership is estimated at 1,499 gallons/day.

As previously noted, it is anticipated that up to 57,418 gallons per day (gpd) or 0.057 million gallons per day (mgd) of wastewater could be generated from the proposed project. This is an additional 55,448 gallons/day from previous uses at the project site. The wastewater treatment demand of 0.057 mgd that could result from potential future development of the proposed project totals approximately 2.9 percent of current surplus treatment capacity of the IRWD's LAWRP. Impacts associated with wastewater facilities would be less than significant because the amount of wastewater that could be generated by future development on the project site would be within the existing surplus treatment capacity at IRWD's LAWRP. In addition, IRWD issued a Will Serve Letter for the proposed project stating adequate supplies for water and sewer services, assuming the project provides connectors to IRWD's existing facilities. Installation of water and sewer facilities sufficient to serve a proposed project is a standard condition for development projects. Implementation of the proposed project would result in water and sewer facilities being extended to serve the vacant portion of the proposed project site; however, the remaining infrastructure is already in place as the northern portion of the site previously included an automobile dealership and service center. Therefore, development of the project site with up to 151 single-family residences would not require the construction of new wastewater treatment facilities or expansion of existing facilities.

The project is not expected to necessitate new or expanded water entitlements, and IRWD would be able to accommodate the increased demand for potable water. Therefore, project impacts associated with an increase in potable water demand are considered less than significant, and no mitigation is required. An in-depth discussion of water supply is provided below in Response 17 d).

Likewise, increased wastewater flows from the proposed project can be accommodated within the existing design capacity of the treatment plants that serve the City (also refer also to Appendix H for IRWD Will Serve Letter). Therefore, the proposed project would not require, nor would it result in, the construction of new water or wastewater treatment or collection facilities or expansion of existing facilities other than those facilities to be constructed on site, which could cause significant environmental effects. Project impacts related to the construction of water and wastewater treatment or collection facilities are less than significant, and no mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

c) **Less than Significant with Mitigation Incorporated.** The City of Lake Forest is a co-permittee on large Orange County Municipal Separate Storm Sewer System (MS4) permits

issued by both the San Diego and Santa Ana RWQCBs for the Area-Wide Urban Storm Water Permits pursuant to the NPDES program under Section 402(p) of the federal Clean Water Act. The permit regulates urban storm water runoff, surface runoff, and drainage that flow into the MS4 system. The City's storm water drainage system flows into Orange County Flood Control facilities. The City is responsible for regulating inflows to and discharges from its municipal storm drainage system.

Because the proposed project disturbs greater than 1 ac of soil, the project is subject to the requirements of the SWRCB's NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, NPDES No. CAS000002) (CGP).

According to the *Preliminary Hydrology and Hydraulic Report* (Appendix D) prepared for the project, in the current condition, 80 percent of runoff from the project site drains in a southwesterly direction to an existing 30-inch reinforced concrete pile storm drain that runs west from an existing catch basin in the northern portion of Auto Center Drive to an existing catch basin on Bake Parkway. Runoff from the remainder of the project site drains as surface flow in a southeasterly direction to Auto Center Drive and then to an existing catch basin at the corner of Auto Center Drive and Towne Centre Drive. The proposed project would include one main storm drain line (30-inch) that would collect runoff from a series of catch basins on the proposed main driveway and then convey the runoff west to the existing storm drain facility in Bake Parkway.

As discussed in Section 4.9, Hydrology and Water Quality, the proposed project would increase impervious surface area on site, which would increase the volume of runoff from the site from 0.9 af to 1.15 af for a 2-year, 24-hour runoff volume (an increase of 0.25 af or 28 percent). The proposed project would also increase the 2-year, 24-hour time of concentration from 8.50 minutes to 11.03 minutes (an increase of 2.13 minutes or 25 percent). However, with implementation of BMPs, the proposed project would reduce the peak flow rate from 13.75 cfs to 11.91 cfs for a 2-year storm event (a decrease of 1.84 cfs or 13 percent).

As specified in Mitigation Measure WQ-2, the project applicant shall prepare a Final WQMP which shall specify BMPs to be incorporated into the project site design. Additionally, Brookfield Residential (via an HOA) would be responsible for inspection and maintenance of all BMPs. As specified in Mitigation Measure WQ-3, the HOA would verify BMP implementation and ongoing maintenance through inspection, self-certification, survey, or other effective measures.

Because the volume runoff from the site would be equal to or lower than existing conditions (which includes some impervious area) with implementation of Mitigation Measures WQ-2 and WQ-3, the proposed project would not contribute additional runoff to the downstream storm water drainage facilities or cause the expansion of existing facilities. Therefore, impacts to storm water drainage facilities would be reduced to less than significant levels.

Significance Determination: Potentially Significant.

Mitigation Measures: Refer to Mitigation Measures WQ-2 and WQ-3.

Significance Determination After Mitigation: Less than Significant.

d) **Less than Significant Impact.** As previously identified, the project site is within the IRWD service area. IRWD obtains water from local groundwater and imported water. Approximately 48 percent of IRWD's overall supply comes from local groundwater wells in the Orange County Groundwater Basin, and the Irvine and Lake Forest sub-basins. For many years, IRWD received almost all of its potable water from imported sources. To alleviate this dependency on costly imported water, IRWD began to develop a series of local wells in 1979. IRWD now operates 25 groundwater wells within its service area. Approximately 27 percent of IRWD's water is purchased through the Municipal Water District of Orange County (MWDOC) from the Metropolitan Water District of Southern California (MWD), a regional water wholesaler that delivers imported water from Northern California and the Colorado River. IRWD produces approximately 21 percent of its water supply by capturing water that normally would run out to sea, treating it, and reusing it for irrigation and other non-potable, or non-drinking, uses. IRWD also supplements its supplies by cleaning non-potable groundwater to make it suitable for irrigation.

As previously identified, the project site is currently partially developed with the remaining land being vacant. While there are structures located on site, the structures are vacant, and no operations currently exist on site. Based on IRWD's Land Use and Water Use Factors, it is estimated that the proposed project's water demand would be approximately 52,850 gallons/day[1]. In addition, water demand for irrigation would be approximately 10,948 gallons/day with consideration of approximately 3.91 ac of irrigated area (landscaping and private yard area).[2] Therefore, the projected total water demand for the proposed project would be 63,798 gallons/day or 23,286,270 gallons/year (also referred to as 71.43 af/year).

Based on water supply and demand forecasts contained within the IRWD's 2010 Urban Water Management Plan, the future water supply availability is adequate to serve future populations over the next 23 years. These supply and demand forecasts for the multiple dry year scenarios (considered to be worst-case scenario) are incorporated in Table 4.17.A.

As indicated in Table 4.17.A, current and future water supplies of the IRWD would be able to supply the water demanded by the proposed uses. In addition, compliance with the water service requirements (and payment of fees) of the City is required to obtain water service and IRWD issued a Will Serve Letter for the proposed project stating adequate supplies for water services. Therefore, development of the proposed project would not cause a significant water supply impact. Impacts are anticipated to be less than significant.

[1] Based on IRWD Land Use and Water Use Factors (January 2012). Local Demands: 425 gal/du/day for Low-Medium Density with average density of 10.5 du/acre.

[2] Based on IRWD Land Use and Water Use Factors (January 2012). Irrigation Demands: 2,800 gal/acre/day for Low-Medium Density with average density of 10.5 du/acre.

Table 4.17.A: Water Supply and Demand Projections (2011–2025)

Year	Water Supply (af/yr[1])	Normal Year Water Demand (af/yr)	Surplus/Shortage (af/yr)
2010	151,751	110,309	Surplus: 24,394
2015	176,610	110,309	Surplus: 66,301
2020	180,674	120,196	Surplus: 60,478
2025	180,674	127,692	Surplus: 52,982
2030	180,674	128,651	Surplus: 52,023
2035	180,674	129,592	Surplus: 51,082

Source: Irvine Ranch Water District 2010 Urban Water Management Plan, 2011.
[1] An af is the amount of water necessary to cover 1 ac of surface area to a depth of 1 ft and is approximately 326,000 gallons of water.
ac = acres af/yr = acre-foot per year ft = foot/feet

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

e) **Less than Significant Impact.** Refer to Response 4.17.b above. Although the project would increase wastewater generation on the site, the increased wastewater flows from the proposed project can be accommodated within the existing design capacity of the treatment plants that serve the City. Therefore, the wastewater treatment provider would have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. Therefore, impacts related to wastewater generation are less than significant, and no mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

f) **Less than Significant Impact.** Solid waste collection is a "demand-responsive" service, and current service levels can be expanded and funded through user fees without difficulty. The project site is located within OC Waste & Recycling's (OCWR) service area. OCWR administers the countywide Integrated Waste Management Plan. OCWR administers the countywide Integrated Waste Management Plan. OCWR owns and operates three active landfills and four household hazardous waste collection centers. All three landfills are permitted as Class III landfills. Class III landfills accept all types of nonhazardous municipal solid waste for disposal; however; no hazardous or liquid waste can be accepted. Trash in Lake Forest is collected by Waste Management of Orange County and disposed of in one of OCWRs landfills.

The Frank R. Bowerman Landfill, located in Irvine, is the closest OCWR landfill to the proposed project site and would be expected to provide waste disposal for the proposed

project once operational. The Frank R. Bowerman Landfill, which is permitted to receive a daily maximum of no more than 11,500 tons of solid waste per day, is approximately 725 ac in size, 534 ac of which are permitted for refuse disposal. The landfill opened in 1990 and is scheduled to close in approximately 2053. The permitted capacity of the landfill is 127 million cubic yards (cy). The landfill has a remaining air space capacity estimated at approximately 59.41 million cy (46.8 percent of total capacity).

The proposed project is exclusively residential in nature, and no hazardous wastes are expected to be generated by the proposed project. Nonhazardous waste may be disposed of at the Frank R. Bowerman Landfill. The proposed project is expected to generate approximately 1,847[1] lbs per day of solid waste, which is more than the former auto dealership which is estimated to have generated approximately 0.6 tons/employee/year[2] per CalRecycle's waste disposal rates. Solid waste generated by the proposed project would not exceed the capacity of the Frank R. Bowerman Landfill. Therefore, the proposed project would result in a less than significant impact to solid waste and landfill facilities, and no mitigation is required.

Significance Determination: Less than Significant.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: Less than Significant.

g) **No Impact.** The California Integrated Waste Management Act (AB 939) changed the focus of solid waste management from landfill to diversion strategies such as source reduction, recycling, and composting. The purpose of the diversion strategies is to reduce dependence on landfills for solid waste disposal. AB 939 established mandatory diversion goals of 25 percent by 1995 and 50 percent by 2000. The first reporting year for the City was 1997–1998. That year, the City accomplished a diversion rate of 62 percent and has achieved a minimum of 62 percent in every reporting year since. The City has an adopted Source Reduction Recycling Element (SRRE) that is in compliance with the State requirements.

It is expected that the proposed project would comply with existing or future statutes and regulations, including waste diversion programs mandated by City, State, or federal law. Therefore, the proposed project would not result in an impact related to federal, State, and local statutes and regulations related to solid wastes, and no mitigation is required.

Significance Determination: No Impact.

Mitigation Measures: No Mitigation is Required.

Significance Determination After Mitigation: No Impact.

---

1 Waste generation rates from CalRecycle's "Estimated Solid Waste Generation Rates for Residential Developments" were used to estimate waste generation for the proposed project. Residential land use was used to estimate demand. The generation factor is 12.23 lbs/household/day.

2 http://www.calrecycle.ca.gov/wastechar/DispRate.htm.

4.20 MANDATORY FINDINGS OF SIGNIFICANCE		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
(b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?)	☐	☒	☐	☐
(c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion:

a) **Less than Significant with Mitigation Incorporated.** The northern portion of the site is developed with a former car dealership and the southern portion of the site is currently vacant, undeveloped land. The proposed project is a residential development. The site has been subject to previous mass grading and is entirely surrounded by urban developed areas. Based on the project description and the preceding responses, development of the proposed project does not have the potential to degrade the quality of the natural environment. The existing adjacent trees may, however, provide suitable habitat for nesting birds, some of which are protected by the MBTA. Disturbing or destroying active nests that are protected is a violation of the MBTA. In addition, nests and eggs are protected under California Fish and Game Code Section 3503. Adherence to Mitigation Measure B-1 would ensure that the project adheres to the MBTA, thereby reducing potential project impacts related to biological resources to a less than significant level. Additionally, Mitigation Measure B-2 requires a permit for the cutting, pruning, or removal of eucalyptus trees between April 1 and October 31 and would also reduce potential project impacts related to biological resources to a less than significant level.

In addition, while no historic, archaeological, or paleontological resources were identified within project area boundaries, the project area has not been surveyed. Therefore, because the project includes excavation, it has the potential to impact unknown paleontological resources. Mitigation Measure C-1 requires that a qualified paleontologist be retained to monitor grading activities. In the event that cultural or paleontological resources are discovered, no further grading shall occur in the area of the find until the resource can be evaluated and appropriately recovered. Implementation of Mitigation Measures C-1 would reduce any potential impacts to previously undiscovered cultural or paleontological resources to a less than significant level. Similarly, Mitigation Measure C-2 would reduce any potential impacts related to the discovery of unknown buried human remains on site to a less than significant level.

Significance Determination: Potentially Significant.

Mitigation Measures: Refer to Mitigation Measures B-1, B-2, C-1, and C-2.

Significance Determination After Mitigation: Less than Significant.

b) **Less than Significant with Mitigation Incorporated.** The northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land. Several related projects are proposed and/or approved in the vicinity of the proposed project, including recently approved Kaiser Medical Office building located at 26882 Towne Centre Drive and proposed residential project named The Paseos at Foothill Ranch Village located at 70 Auto Center Drive. The proposed project is a residential development. The proposed project would not be consistent with the City's current General Plan Land Use designation and Zoning designation; however, the project includes an amendment to both the General Plan and Zoning designations from commercial to residential. The proposed Paseos at Foothill Ranch Village project would also require an amendment to both the General Plan and Zoning designations as it would be a residential project located within a commercial designation; therefore the proposed project is contributing to the replacement of commercial areas with residential uses within the City of Lake Forest however with consideration of the scale of the proposed project and related projects nearby, cumulative impacts to the loss of commercial land uses would be less than significant.

The proposed project would result in a potentially significant cumulative impact to regional fire protection services provided by OCFA and mitigation would be required. Mitigation Measure F-1 requires the applicant to enter into a secured Fire Protection Agreement with OCFA to identify pro-rata fair share funding of capital improvements necessary to establish adequate fire protection facilities, equipment, and/or personnel. Implementation of this measure would reduce cumulative impacts to regional fire protection services to below a level of significance.

Overall, the site has been subject to previous mass grading and is entirely surrounded by urban developed areas. Other impacts related to the proposed project, including cumulative impacts, as discussed in Sections 4.1-4.17 of this IS/MND are less than significant or can be reduced to less than significant levels with incorporation of mitigation measures discussed in previous sections of this document. Therefore, the proposed project's contribution to any significant cumulative impacts would be cumulatively less than considerable.

Significance Determination: Potentially Significant.

Mitigation Measures: Refer to Mitigation Measures A-1, A-2, B-1, B-2, C-1, C-2, G-1 through G-2, L-1, N-1 through N-3, and WQ-1 through WQ-4.

F-1: Prior to issuance of any building permits for the project, the project applicant shall enter into a Secured Fire Protection Agreement with the Orange County Fire Authority. This Agreement shall specify the developer's pro-rata fair share funding

of capital improvements necessary to establish adequate fire protection facilities and equipment, and/or personnel.

Significance Determination After Mitigation: Less than Significant.

c) **Less than Significant with Mitigation Incorporated.** The northern portion of the site is developed with a former car dealership, and the southern portion of the site is currently vacant, undeveloped land. The proposed project is a residential development. The site has been subject to previous mass grading and is entirely surrounded by urban developed areas. Based on the project description and the preceding responses, development of the proposed project would not cause substantial adverse effects on human beings because all potentially significant impacts of the proposed project can be mitigated to a less than significant level.

Significance Determination: Potentially Significant.

Mitigation Measures: Refer to Mitigation Measures A-1, A-2, B-1, B-2, C-1, C-2, G-1 through G-3, L-1, N-1 through N-3, and WQ-1 through WQ-4.

Significance Determination After Mitigation: Less than Significant.

5.0 MITIGATION MONITORING AND REPORTING PROGRAM

5.1 MITIGATION MONITORING REQUIREMENTS

Public Resources Code (PRC) Section 21081.6 (enacted by the passage of Assembly Bill [AB] 3180) mandates that the following requirements shall apply to all reporting or mitigation monitoring programs:

- The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation. For those changes which have been required or incorporated into the project at the request of a Responsible Agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the Lead Agency or a Responsible Agency, prepare and submit a proposed reporting or monitoring program.
- The Lead Agency shall specify the location and custodian of the documents or other material which constitute the record of proceedings upon which its decision is based.
- A public agency shall provide the measures to mitigate or avoid significant effects on the environment that are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents which address required mitigation measures or in the case of the adoption of a plan, policy, regulation, or other project, by incorporating the mitigation measures into the plan, policy, regulation, or project design.
- Prior to the close of the public review period for a draft Environmental Impact Report (EIR) or Mitigated Negative Declaration (MND), a Responsible Agency, or a public agency having jurisdiction over natural resources affected by the project, shall either submit to the Lead Agency complete and detailed performance objectives for mitigation measures which would address the significant effects on the environment identified by the Responsible Agency or agency having jurisdiction over natural resources affected by the project, or refer the Lead Agency to appropriate, readily available guidelines or reference documents. Any mitigation measures submitted to a Lead Agency by a Responsible Agency or an agency having jurisdiction over natural resources affected by the project shall be limited to measures which mitigate impacts to resources which are subject to the statutory authority of, and definitions applicable to, that agency. Compliance or noncompliance by a Responsible Agency or agency having jurisdiction over natural resources affected by a project with that requirement shall not limit that authority of the Responsible Agency or agency having jurisdiction over natural resources affected by a project, or the authority of the Lead Agency, to approve, condition, or deny projects as provided by this division or any other provision of law.

5.2 MITIGATION MONITORING PROCEDURES

The mitigation monitoring and reporting program has been prepared in compliance with PRC Section 21081.6. It describes the requirements and procedures to be followed by the City of Lake Forest (City) to ensure that all mitigation measures adopted as part of the proposed Town Centre Residential Project (project) will be carried out as described in this Initial Study (IS)/MND.

Table 5.A lists each of the mitigation measures specified in this IS/MND and identifies the party or parties responsible for implementation and monitoring of each measure.

Table 5.A: Mitigation and Monitoring Reporting Program

Project Design Features (PDFs) and Mitigation Measures	Responsible Party	Timing for PDF or Mitigation Measure
Aesthetics		
A-1: **Comprehensive Lighting Plan.** Prior to issuance of a precise grading permit for the Town Centre Residential Project (project), the project applicant shall prepare a comprehensive lighting plan for review and approval by the City of Lake Forest (City) Director of Development Services, or designee. The lighting plan shall be prepared by a qualified engineer and shall be in compliance with applicable standards of the City Municipal Code. The lighting plan shall address all aspects of lighting, including but not limited to infrastructure and safety. The lighting plan shall include the following in conjunction with other measures, as determined by the illumination engineer: a. No direct rays or glare are permitted to shine onto public streets or adjacent sites. b. Light levels at the property line shall not exceed 0.1 footcandle (fc) adjacent to business properties. c. Parking area lighting shall be Illuminating Engineering Society "Full Cut Off" designated or "fully shielded" fixtures so that no light is emitted above the lowest light-emitting part of the fixture. d. Light standards shall not exceed 20 feet (ft) in height.	City of Lake Forest Director of Development Services, or designee	Prior to issuance of a precise grading permit
A-2: **Photometric Survey.** Prior to the issuance of a precise grading permit, a final photometric survey shall be prepared for approval by the City Director of Development Services, or designee. The survey shall demonstrate that lighting values do not exceed 0.1 fc adjacent to business properties and that no direct rays shine onto public streets or adjacent sites.	City of Lake Forest Director of Development Services, or designee	Prior to issuance of a precise grading permit
Biological Resources		
B-1: **Migratory Bird Treaty Act.** In the event that Towne Centre Residential Project (project) construction or grading activities should occur within the active breeding season for birds (i.e., February 15–August 15), a nesting bird survey shall be conducted by a qualified biologist prior to commencement of construction activities. If active nesting of birds is observed within 100 feet (ft) of the designated construction area prior to construction, the construction crew shall establish an appropriate buffer around the active nest. The designated project biologist shall determine the buffer distance based	City of Lake Forest Director of Development Services, or designee	Prior to commencement of grading activities and issuance of any building permits

Table 5.A: Mitigation and Monitoring Reporting Program

	Project Design Features (PDFs) and Mitigation Measures	Responsible Party	Timing for PDF or Mitigation Measure
	on the specific nesting bird species and circumstances involved. Once the project biologist verifies that the birds have fledged from the nest, the buffer may be removed. Prior to commencement of grading activities and issuance of any building permits, the City of Lake Forest (City) Director of Development Services, or designee, shall verify that all project grading and construction plans include specific documentation regarding the requirements of the Migratory Bird Treaty Act (MBTA), that preconstruction surveys have been completed and the results reviewed by staff, and that the appropriate buffers (if needed) are noted on the plans and established in the field with orange snow fencing.		
B-2	**Eucalyptus Tree Cutting Permit.** In the event eucalyptus trees would need to be cut, pruned, or removed during the restricted period (April 1–October 31), the project applicant shall obtain a Eucalyptus Tree Cutting Permit from the City of Lake Forest. The following items must be submitted with the permit: 1. Site plan indicating the number and location of eucalyptus trees to be pruned or removed; 2. Small scale vicinity map; 3. Written approval from Homeowner's or Business Association; and 4. Completed Eucalyptus Tree Cutting Permit Application Form.	City of Lake Forest Director of Development Services, or designee	Prior to the cutting, pruning, or removal of eucalyptus trees between April 1 and October 31
Cultural Resources			
C-1:	**Paleontological Resources Impact Mitigation Program**. Prior to commencement of any grading activity on site, the City of Lake Forest (City) Director of Development Services, or designee, shall verify that a paleontologist, who is listed on the County of Orange (County) list of certified paleontologists, has been retained by the Towne Centre Residential Project (project) applicant and either the paleontologist, or a representative, shall be on site during all rough grading and other significant ground-disturbing activities in native soils. A paleontologist shall not be required on site if excavation is only occurring in Artificial Fill. Prior to the beginning of monitoring, the paleontologist shall prepare a Paleontological	City of Lake Forest Director of Development Services, or designee	Prior to commencement of any grading activity on site

Table 5.A: Mitigation and Monitoring Reporting Program

Project Design Features (PDFs) and Mitigation Measures	Responsible Party	Timing for PDF or Mitigation Measure
Resources Impact Mitigation Program (PRIMP) for the proposed project. The PRIMP should be consistent with the guidelines of the Society of Vertebrate Paleontologists (SVP) (SVP, 1995 and 2010) and shall include but not be limited to the following: • Attendance at the pregrade conference in order to explain the mitigation measures associated with the project. • During construction excavation, a qualified vertebrate paleontological monitor shall initially be present on a full-time basis whenever excavation shall occur within the sediments that have a high paleontological sensitivity rating and on a spot-check basis in sediments that have a low sensitivity rating. Based on the significance of any recovered specimens, the qualified paleontologist may set up conditions that shall allow for monitoring to be scaled back to part-time as the project progresses. However, if significant fossils begin to be recovered after monitoring has been scaled back, conditions shall also be specified that would allow increased monitoring as necessary. The monitor shall be equipped to salvage fossils and/or matrix samples as they are unearthed in order to avoid construction delays. The monitor shall be empowered to temporarily halt or divert equipment in the area of the find in order to allow removal of abundant or large specimens. • The underlying sediments may contain abundant fossil remains that can only be recovered by a screening and picking matrix; therefore, these sediments shall be occasionally be spot-screened through 1/8 to 1/20-inch mesh screens to determine whether microfossils exist. If microfossils are encountered, additional sediment samples (up to 6,000 pounds [lbs]) shall be collected and processed through 1/20-inch mesh screens to recover additional fossils. Processing of large bulk samples is best accomplished at a designated location within the project that shall be accessible throughout the project duration but shall also be away from any proposed cut or fill areas. Processing is usually completed concurrently with construction, with the intent to have all processing completed before, or just after, project completion. A small corner of a staging or equipment parking area is an ideal location. If water is not available, the location should be accessible for a water truck to occasionally fill containers with water.		

Table 5.A: Mitigation and Monitoring Reporting Program

Project Design Features (PDFs) and Mitigation Measures	Responsible Party	Timing for PDF or Mitigation Measure
• Preparation of recovered specimens to a point of identification and permanent preservation. This includes the washing and picking of mass samples to recover small invertebrate and vertebrate fossils and the removal of surplus sediment from around larger specimens to reduce the volume of storage for the repository and the storage cost for the developer. • Identification and curation of specimens into a museum repository with permanent retrievable storage, such as the Natural History Museum of Los Angeles County (LACM). • Preparation of a report of findings with an appended itemized inventory of specimens. When submitted to the City Director of Development Services, or designee, the report and inventory would signify completion of the program to mitigate impacts to paleontological resources.		
C-2: Consistent with the requirements of California Code of Regulations (CCR) Section 15064.5(e), if human remains are encountered, work within 25 feet (ft) of the discovery shall be redirected and the County Coroner notified immediately. State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Orange County (County) Coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. If the remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC), which shall determine and notify a most likely descendant (MLD). With the permission of the City, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. Consistent with CCR Section 15064.5(d), if the remains are determined to be Native American and an MLD is notified, the City shall consult with the MLD as identified by the NAHC to develop an agreement for treatment and disposition of the remains. Upon completion of the assessment, the consulting archaeologist shall prepare a report documenting the methods and results and provide recommendations regarding the	City of Lake Forest Director of Development Services, or designee	If human remains are encountered during grading or construction

Table 5.A: Mitigation and Monitoring Reporting Program

Project Design Features (PDFs) and Mitigation Measures		Responsible Party	Timing for PDF or Mitigation Measure
	treatment of the human remains and any associated cultural materials, as appropriate, and in coordination with the recommendations of the MLD. The report should be submitted to the City's Director of Development Services, or designee, and the South Central Coastal Information Center (SCCIC). The City's Director of Development Services, or designee, shall be responsible for reviewing any reports produced by the archaeologist to determine the appropriateness and adequacy of findings and recommendations.		
Public Services			
F-1:	Prior to issuance of any building permits for the project, the project applicant shall enter into a Secured Fire Protection Agreement with the Orange County Fire Authority. This Agreement shall specify the developer's pro-rata fair share funding of capital improvements necessary to establish adequate fire protection facilities and equipment, and/or personnel.	City of Lake Forest Building Official, or designee	Prior to issuance of any building permits
Geology and Soils			
G-1:	**Geotechnical Requirements and Seismic Design Standards.** All grading operations and construction shall be conducted in accordance with governing building codes and in conformance with the recommendations included in the geotechnical report on the proposed Town Centre Residential Project (project) site titled *Evaluation of the Proposed Residential Development of The Village at Foothill Ranch, City of Lake Forest, California* (LGC Geotechnical, Inc., November 2011) (included in Appendix C of this Initial Study/Mitigated Negative Declaration [IS/MND]). Unless superseded by other regulatory provisions or standards, seismic design criteria shall be developed on the basis of the requirements of the City of Lake Forest (City) Building Code. Prior to issuance of building permits, the City's Building Official, or designee, shall review and approve final design plans and the recommendations of the project geotechnical consultant as summarized in a final written report.	City of Lake Forest Public Works Official, or designee	Prior to issuance of building permits
G-2:	**Corrosive Soils.** Prior to issuance of a building permit, the Director of the City Development Services, or designee, shall recommend that the applicant retain the services of a licensed corrosion engineer to evaluate the as-graded soil corrosivity characteristics and to provide detailed corrosion protection measures. Where steel may come in contact with on-site soils, project construction shall include the use of steel that	City of Lake Forest Director of Development Services, or designee	Prior to issuance of a building permit

Table 5.A: Mitigation and Monitoring Reporting Program

	Project Design Features (PDFs) and Mitigation Measures	Responsible Party	Timing for PDF or Mitigation Measure
	is protected against corrosion. Corrosion protection may include, but is not limited to, sacrificial metal, the use of protective coatings, and/or cathodic protection. Additional site testing and final design evaluation regarding the possible presence of significant volumes of corrosive soils on site shall be performed by the licensed project corrosion engineer to refine and enhance these recommendations. On-site inspection during grading shall be conducted by the project geotechnical consultant and City Building Official to ensure compliance with geotechnical specifications as incorporated into project plans.		
G-3:	**Expansive Soils.** Prior to issuance of building permits, the Director of the City Development Services, or designee, shall review and approve final design plans and the recommendations of the project geotechnical consultant related to expansive soils as summarized in a final written report. Mitigation may include, but is not limited to, additional remedial grading, premoistening of soils, use of nonexpansive material, post-tensioned slabs, construction of nonexpansive building pads, or use of caisson foundations. During construction, the project soils engineer shall verify that expansive soil mitigation measures are implemented, and the City Building Official shall make site inspections to ensure compliance with approved measures.	City of Lake Forest Director of Development Services, or designee	Prior to issuance of building permits
Hydrology and Water Quality			
WQ-1:	Prior to issuance of a grading permit, the project applicant shall obtain coverage under the State Water Resources Control Board National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, NPDES No. CAS000002) (Construction General Permit [CGP]). The project applicant shall provide the Waste Discharge Identification Number (WDID) to the City of Lake Forest (City) to demonstrate proof of coverage under the CGP. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared and implemented for the project in compliance with the requirements of the CGP. The SWPPP shall identify construction Best Management Practices (BMPs) to be implemented to ensure that the potential for soil erosion and sedimentation is minimized and to control the discharge of pollutants in storm water runoff as a result of construction activities.	City of Lake Forest Director of Development Services, or designee	Prior to issuance of a grading permit

Table 5.A: Mitigation and Monitoring Reporting Program

Project Design Features (PDFs) and Mitigation Measures	Responsible Party	Timing for PDF or Mitigation Measure
WQ-2: Prior to the issuance of any grading or building permits, the project applicant shall prepare a Final Water Quality Management Plan (WQMP). The Final WQMP shall be prepared consistent with the Orange County Municipal Separate Storm Sewer System (MS4) Permit, Drainage Area Management Plan, Model WQMP, and Technical Guidance Document. The Final WQMP shall specify BMPs to be incorporated into the design of the project. The project applicant shall provide the Final WQMP to the City for review and approval.	City of Lake Forest Director of Development Services, or designee	Prior to issuance of any grading or building permits
WQ-3: During operation, the Home Owners Association (HOA) shall verify BMP implementation and maintenance through inspection, self-certification, survey, or other equally effective measure. The certification shall verify, at a minimum, the inspection and maintenance of all structural BMPs, including inspection and required maintenance in the late summer/early fall (prior to the start of the rainy season). The HOA shall retain, and make available to the City upon request, operations, inspections, and maintenance records of the BMPs for at least 5 years after the recorded inspection date for the life of the project. In addition, the HOA shall ensure that long-term funding for BMP maintenance is available.	City of Lake Forest Director of Development Services, or designee	During operation and at least 5 years after the recorded inspection date for the life of the project.
WQ-4: Upon transfer of the maintenance responsibility for the BMP, the HOA's Board of Directors shall submit a formal notice of transfer to the City of Lake Forest at the time responsibility for maintenance of the property is transferred. The transfer of responsibility shall be incorporated into the Final WQMP as an amendment.	City of Lake Forest Director of Development Services, or designee	Upon transfer of the maintenance responsibility for the BMP
Land Use		
L-1: Prior to issuance of the first occupancy permit, the applicant shall provide to the Development Services Department, for review and approval, an informational pamphlet that will be used to educate homeowners about the adjacent commercial uses and anticipated activities of these uses and their legal rights to operate within the limits of the Municipal Code.	City of Lake Forest Director of Development Services, or designee	Prior to issuance of the first occupancy permit
Noise		
N-1: **Construction Noise Limits.** Prior to commencement of grading activities and issuance of building permits, the City of Lake Forest (City) Director of Development Services, or designee, shall verify that the following notes appear on grading and construction plans:	City of Lake Forest Director of Development	Prior to commencement of grading activities and issuance of building permits

Table 5.A: Mitigation and Monitoring Reporting Program

	Project Design Features (PDFs) and Mitigation Measures	Responsible Party	Timing for PDF or Mitigation Measure
	1. During all site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards. 2. The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors (i.e., residential uses southeast of the project site, if built and occupied prior to the start of construction of the project site) nearest the project site. 3. The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors (i.e., residential uses to the southeast of the project site, if built and occupied prior to the start of construction of the project site) nearest the project site during all project construction. 4. Construction shall be limited to the hours of 7:00 a.m. to 8:00 p.m. Monday through Saturday. In accordance with City standards, no construction activities are permitted outside of these hours, and no construction is permitted on Sundays or a federal holiday without a special noise variance. The Construction Contractor will verify compliance with this measure during construction.	Services, or designee	
N-2:	**Operations Noise Limits/Exterior.** In order to meet the City's exterior noise standards of 65 A-weighted decibels (dBA) Community Noise Equivalent Level (CNEL) threshold at all decks, the following measure must be implemented: Plan 6 decks facing Portola or Bake Parkways, where noise levels have been identified in this noise impact analysis to exceed 65 dBA CNEL, must include a transparent glass or plastic shield, or other similar noise-reducing barrier that would reduce noise levels to a maximum of 65 dBA CNEL. Shields must be 5.5-feet (ft) tall and fill the entire roadway frontage of the deck. This mitigation measure only applies to decks with a depth of 6 ft or greater. At the option of the builder, a future noise analysis may be conducted and submitted to the City Building Official for review to show that the actual noise level at each of these decks does not exceed the 65 dBA CNEL standard. If	City of Lake Forest Building Official	Prior to commencement of grading activities and issuance of building permits

Table 5.A: Mitigation and Monitoring Reporting Program

	Project Design Features (PDFs) and Mitigation Measures	Responsible Party	Timing for PDF or Mitigation Measure
	confirmed by the City Building Official that noise levels are satisfied, placement of a noise barrier is not required.		
N-3	**Operations Noise Limits/Interior.** In order to meet the interior noise standards for prolonged periods of time with windows closed and CBC requirements, an air conditioning system (a form of mechanical ventilation) is required for all dwelling units fronting Portola Parkway and Bake Parkway.	City of Lake Forest Building Official	Prior to commencement of grading activities and issuance of building permits

This page intentionally left blank

6.0 REFERENCES

Arcadis U.S., Inc., May 20, 2011. Brookfield Residential Phase I Environmental Site Assessment Report.

California Air Resources Board (ARB), 2010. *Economic Sectors Portal*. Website: www.arb.ca.gov/cc/ghgsectors/ghgsectors.htm. Accessed January 5, 2010.

California Department of Conservation. Farmland Mapping and Monitoring Program. 2010.

California Department of Conservation. *Orange County Tsunami Inundation Maps*. http://www.consrv.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/Orange/Pages/Orange.aspx. Site accessed June 28, 2012.

California Department of Fish and Game. CNDDB, RareFind v. 3.1.0, accessed July 19, 2012.

California Department of Transportation website: http://www.dot.ca.gov/hq/LandArch/scenic_highways.

California Native Plant Society. www.rareplants.cnps.org, accessed July 19, 2012.

City of Lake Forest Municipal Code, June 2010.

City of Lake Forest. 1994, updated 2011. Lake Forest General Plan.

City of Lake Forest. 2011. Kaiser Medical Office Building IS/MND.

City of Lake Forest. Citywide Design Guidelines.

County of Orange Planning and Development Services. July 2004.

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Map No. 06059C0316J. December 2009.

Fuscoe Engineering. January 31, 2012. Preliminary Water Quality Management Plan, Towne Centre.

Fuscoe. Preliminary. April 5, 2012. Hydrology and Hydraulic Report, Towne Centre.

Hans Giroux & Associates. June 18, 2012. Air Quality and Greenhouse Gas Emissions Impact Analysis, Towne Centre Residential Project, City of Lake Forest, California.

Hans Giroux & Associates. June 18, 2012. Noise Impact Analysis, Towne Centre Residential Project, City of Lake Forest, California.

Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Working Group I: The Physical Science Basis*. http://www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html. Accessed July 26, 2011.

Irvine Ranch Water District. January 2012. Table 3-1 Interim Land Use and Water use Factors

Irvine Ranch Water District. March 2002. Urban Water Management Plan.

Irvine Ranch Water District. March 23, 2012. Conditional Water and Sewer Will Serve Letter for Tentative Tract Map No. 17446 in the City of Lake Forest.

LGC Geotechnical, Inc., November 2011. Geotechnical Evaluation of the Proposed Residential Development of The Village at Foothill Ranch, City of Lake Forest, California.

LSA Associates, Inc. July 16, 2012. Paleontology Memo for the Towne Centre Residential Project.

LSA Associates, Inc. July 16, 2012. Cultural Resource Memo for the Towne Centre Residential Project.

Orange County Fire Authority Strategic Plan 2010-2015, Orange County Fire Authority, 2010
South Coast Air Quality Management District. www.aqmd.gov/ceqa/handbook/LST/LST.html.

Orange County Fire Authority. July 24, 2012. Public Services Questionnaire.

Orange County Sherriff's Department. September 12, 2012. Public Services Questionnaire.

Saddleback Unified School District. August 22 2012. Public Services Questionnaire.

Stantec. April 2011. Foothill Ranch Towne Centre Residential General Plan Amendment and Zone Change Traffic Study.

State of California, 2008. Governor's Office of Planning and Research. *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act Review*. June 19.

United Nations Environment Programme (UNEP), 2007. *Buildings and Climate Change: Status, Challenges and Opportunities*, Paris, France.

United States Census Bureau, 2006-2010 American Community Survey. Accessed July 5, 2012.

United States Census Bureau, 2010 Census. Accessed July 5, 2012.

United States Fish and Wildlife Service. USFWS Species Occurrence Data. http://www.fws.gov/carlsbad/GIS/CFWOGIS.html accessed July, 2012.

APPENDIX A

AIR QUALITY/GREENHOUSE GAS ANALYSIS

(Included in the attached CD)

This page intentionally left blank

APPENDIX B

CALIFORNIA NATURAL DIVERSITY DATA BASE SEARCH

(Included in the attached CD)

This page intentionally left blank

APPENDIX C

GEOTECHNICAL REPORT

(Included in the attached CD)

This page intentionally left blank

APPENDIX D

PRELIMINARY HYDROLOGY AND HYDRAULIC REPORT

(Included in the attached CD)

This page intentionally left blank

APPENDIX E

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

(Included in the attached CD)

This page intentionally left blank

APPENDIX F

WATER QUALITY MANAGEMENT PLAN

(Included in the attached CD)

This page intentionally left blank

APPENDIX G

NOISE REPORT

(Included in the attached CD)

This page intentionally left blank

APPENDIX H

WILL SERVE LETTERS

(Included in the attached CD)

This page intentionally left blank

APPENDIX I

TRAFFIC REPORT

(Included in the attached CD)

This page intentionally left blank